# The Relationship between Anxiety and Self-compassion in Patients Recovered from Coviod-19 in Isfahan

Sima Babaei PHD[1], Leila Jahani[1*]

Objectives: In 2020, a new virus outbreak called New Coronavirus-2019 started in China, and in a short time it turned into a pandemic. people recovered from Covid-19 experience stress and anxiety to varying degrees. Various factors are effective in order to reduce or increase these tensions. Since compassion plays an important role in regulating emotions, it can affect anxiety and stress and be influenced by them as well.
Methods: This is a cross-sectional descriptive analytical study that examined 212 patients diagnosed with Covid-19. These patients were selected by the available sampling method after which the Self Compassion Scale (SCS) and Beck Anxiety Inventory (BAI) were completed either electronically or by telephone interview by the samples. Finally the information was analyzed by SPSS.

Results: The results of this study demonstrated a slight level of anxiety in patients recovered from Covid-19; moreover, the mean of self-compassion was higher than the mean in this group of patients. Also, based on the results, there is an inverse significant relationship between self-compassion and anxiety in these patients.
Conclusion: mild anxiety experienced by patients recovered from the Covid-19 disease can adversely affect their rehabilitation and recovery process. the results of the present study show that as the level of self-compassion in patients recovered from Covid-19 increases, their anxiety decreases. Hence, in order to decrease the anxiety of the patients, self-compassion improvement programs can be employed during the therapy for faster recovery and less side effects.
Keywords: Self-compassion, Anxiety, Covid-19, Coronavirus

## INTRODUCTION

In late December 2019, unexplained pneumonia was reported in Wuhan, China, that spread rapidly from Wuhan to other parts of China as well as other countries. WHO named the new virus as the New 2019 Coronavirus. Coronaviruses belong to the coronaviridae family and are from Nidovirales type that can affect the respiratory, gastrointestinal and nervous systems. According to the World Health Organization, as of April 22, 2020, 2510177 people have been diagnosed with coronavirus, of which 172241 have died and 213 countries are infected with the virus. As an epidemic disease spreads in a country, tension and anxiety take over the society and individuals become highly sensitive to their health. Negative emotions such as anxiety, depression and anger increase and positive emotions such as feelings of happiness and satisfaction in life decrease.

The Covid-19 virus pandemic can also lead to fear, stress and anxiety. Patients infected with Covid-19 have low psychological tolerance and are prone to psychological disorders such as anxiety, fear, depression and negative thought. In this regard, the results of the studies report a high prevalence of psychological disorders such as anxiety, fear, depression, emotional changes, insomnia and post-traumatic stress disorder in these patients. Anxiety is the most common mental health problem in these patients followed by depression, low self-efficacy, poor sleep quality, and anxiety, respectively. Anxious people have misconceptions about health and assume that health equals lack of disease symptoms; hence, in their view the slightest symptoms equal disease, and they are hypersensitive to their physical symptoms.

Results of the study conducted on patients hospitalized in a Chinese hospital indicates that the rate of anxiety and depression in patients are higher than in healthy individuals(1). In addition to patients infected with Covid-19, their families also experience high levels of anxiety. This anxiety in patients can be related to isolation, quarantine, the anonymity of the disease, the ambiguity about the virus, fear of becoming infected or infecting others, insufficient support and lack of access to adequate medical care and food, and ultimately it could be cause by the fatigue due to quarantine. Besides, in the case of family, this could occur due to the lack of care and protection in the hospital.

Fear of the disease being fatal can cause anxiety, unpleasant feelings and psychological disorders for patients infected with Covid-19. Also, the level of anxiety in older patients or those with lower level of education is significantly higher than other patients. People infected with Covid-19 virus have a variety of concerns, including fear of disease progression, disability, or sudden death.

These concerns can affect the patient's response to medication and the duration of the disease. In their experimental study, Rahmatinejad et al., extracted 6 main themes and 24 common subthemes in this group of patients. The 6 main themes include death anxiety, stigma experience, ambiguity experience, positive emotional experiences, emotions experienced in relation to family members and quarantine emotions from which death anxiety, ambiguity experience and experiences experienced in relation to family can directly increase the anxiety of patients. In general, this disease endangers physical and psychological health and has caused stress and anxiety in society. Anxiety can also reduce patients' quality of life and weaken their immune systems. Khodayari Fard and Hassan Asayesh consider self-compassion as one of the important cognitive behavioral strategies affecting anxiety in their study. In self-compassion, unlike anxiety, which is full of negative and self-blaming thoughts, people experience non-judgmental, gentle and compassionate attitudes. Since compassion is one of the significant factors playing role in regulating individuals 'emotions, it can both affect and be affected by the tension and anxiety of people.

Various definitions of compassion have been proposed, Goetz et al., assume compassion is defined as being aware of suffering and wanting to alleviate it. Compassion is considered in two ways, one is compassion for oneself (self-compassion) and the other is compassion for others. Self-compassion is in

*Faculty of Nursing and Midwifery, University of Medical Sciences, Iran*

***Correspondence to:*** *Leila Jahani. Faculty of Nursing and Midwifery, University of Medical Sciences, Iran; E-mail: Leila.jhn.94@gmail.com*

fact sending love and compassion to oneself and includes three components of self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over identification. Thus, compassion evokes emotions in the face of suffering and is a stimulus to help oneself or others. According to what has been said, compassion can be related to emotions such as stress and anxiety that patients with Covid-19 virus experience. Therefore, the aim of this study was to determine the relationship between anxiety and self-compassion in patients recovered from Covid-19 disease, which can provide a basis for appropriate interventions for their physical and mental health.

## METHODS

The present study is a descriptive cross-sectional analytical study. The study population consists of recovered patients from Covid-19 virus and the research environment are training Covid-19 hospital centers in Isfahan. Sampling was performed by available method among patients with Covid-19 virus who were hospitalized, recovered and discharged in the mentioned hospitals from October to January 2020. First, the information of patients recovered from Covid-19 was extracted through the records of patients in selected medical centers with the written permission of the head of the archive, determining the duration of access to the archive and completely without name and identity, and patients whose inclusion criteria included testing positive for Covid-19 by a doctor, undergoing treatment in the selected medical centers of Covid-19 under the supervision of the university of Isfahan Medical Sciences, having satisfaction and willingness to participate in the study, having no known cognitive impairment or mental illness and being over 18 years old were selected. Then, due to ethical considerations, one of the staff who the patient knew made phone calls to inform the patient about the characteristics, goals and implementers of this study and measured their willingness to participate in this study. After confirming the patient's desire and consent to participate in the study, the patient has set the appropriate date and time for the research facilitator to contact him and the patient's contact number has been provided to the facilitator with his/her consent. Finally, 212 recovered patients from Covid-19 who wished to participate in the study entered the study with full satisfaction and knowledge. During the telephone call with the patient, the facilitator fully explained the details of the present study and how to perform it to the patients, and the patient chose how to complete the questionnaires (electronically or by telephone interview). In this study, to evaluate the level of anxiety and self-compassion, Beck Anxiety Inventory (BAI) with Cronbach's alpha of 0.9 and Self-Compassion Scale of Neff with Cronbach's alpha of 0.7 were employed respectively.

Beck Anxiety Inventory designed to measure adult anxiety contains 21 questions whose answers are scored in a four-part spectrum. Total score can vary from 0 up to 63. Score 0 to 7 indicates the lowest or no anxiety, 8 to 15 Mild anxiety, 16 to 25 moderate anxiety and 26 to 63 severe anxiety. Self-Compassion Scale with 26 questions in 6 areas of Self-Kindness, Self-Judgment, Common Humanity, Isolation, Mindfulness, and Over-identified examines self-compassion. In this questionnaire, each question can have a minimum of 1 and a maximum of 5 scores. In the calculation, the questions that are in the three areas that have a negative charge, namely self-judgment, isolation and over-identified get their score reversed. Finally, the minimum score can be 26 and the maximum can be 130 indicating the higher level of self-compassion.

Questionnaires and satisfaction forms were prepared in the form of Google and its link is available through WhatsApp to the samples that chose the method of completing the electronic form. 188 people who entered this study completed the electronic form of consent, demographic information questionnaires, self-compassion and anxiety. The other 24 people, who chose the method of completing the questionnaires in the form of telephone interviews, were asked for their consent orally and the questions of the questionnaires in the form of telephone interviews, and the answers were entered in the printed form of the questionnaires. Later, the information was extracted from the questionnaires and entered into SPSS software and the results were analyzed.

## RESULTS

Based on the findings of this study, descriptive indicators showed that 139 of respondents were female and 73 were men; moreover, 152 of them were married and 60 of them were single.

**Table 1**: Demographic Information of Statistical Sample

| Indicator | Gender | | Marital Status | | Education | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Group | Female | Male | Single | Married | No diploma | Diploma & College degree | BA/BS | MA/MS | PhD |
| N | 139 | 73 | 60 | 152 | 28 | 52 | 95 | 29 | 8 |

A single sample t-test was used to assess anxiety status among patients with Covid-19. The findings presented in Table 2 show that the mean anxiety of those recovered from Covid-19 is 12.61. According to Beck Anxiety Inventory, it can be said that the average anxiety level of patients recovered from Covid-19 indicates the presence of mild anxiety among them. The results of the t-test also show that the mean obtained is significant.

**Table 2**: The Description of Anxiety status of patients recovered from Covid-19

| Variable | Mean | SD | T | Mean Difference | Sig |
|---|---|---|---|---|---|
| Anxiety | 12.61 | 9.76 | -28.17 | -18.86 | 0.001 |

Then, as the findings in Table 3 show, the average of self-compassion (3.14) being higher than the average (3) is evaluated in the range of 5 scale, and among the components of self-compassion, humanity has the highest average (3.29) and over-identified has the lowest average (2.98). The value of t calculated in all components except the over-identified is at the level of 0.01 and more than the critical level of t that is, the range of -1.96 to 1.96. Therefore, the mean difference is significant and considering the value of t and the mean, the over-identified is at the intermediate level.

**Table 3**: Description of Self-Compassion Status and Its Components

| Variable | Mean | SD | T | Mean Difference | Sig |
|---|---|---|---|---|---|
| Self-kindness | 3.22 | 0.755 | 4.42 | 0.229 | 0.001 |
| Self-judgment | 3.12 | 0.748 | 2.49 | 0.128 | 0.013 |
| Humanity | 3.29 | 0.669 | 6.44 | 0.295 | 0.001 |
| Isolation | 3.05 | 0.399 | 1.97 | 0.054 | 0.049 |
| Mindfulness | 3.28 | 0.665 | 6.16 | 0.281 | 0.001 |
| Over-identified | 2.98 | 0.813 | -0.359 | -0.0200 | 0.720 |
| Self-compassion | 3.16 | 0.445 | 5.32 | 0.162 | 0.001 |

In addition, as shown in table 4, the results of the correlation matrix between the components of self-compassion and anxiety indicate a significant relationship between most components. Based on the results of the table, there is a negative and statistically significant relationship between self-compassion and anxiety (r = 0.205, and P≤0.05).

**Table 4**: Correlation Matrix between Self-Compassion and Anxiety Components

| Self-compassion & Anxiety | The amount of correlation | The direction of correlation | Sig |
|---|---|---|---|
| Self-kindness | 0.135 | negative | 0.049 |
| Self-judgment | 0.164 | negative | 0.017 |
| Humanity | 0.135 | negative | 0.050 |
| Isolation | 0.146 | positive | 0.033 |
| Mindfulness | 0.089 | positive | 0.198 |
| Over-identified | 0.274 | negative | 0.001 |
| Self-compassion | 0.205 | negative | 0.03 |

In order to examine whether the components of self-compassion can predict anxiety of those recovered from Covid-19 or not, multivariate regression has been employed simultaneously. Before performing regression, multiple non-alignment between self-compassion components as predictor variables have been checked by VIF test and its results are presented below:

**Table 5**: Investigation of Non-co-alignment of Independent Variables

| Alignment statistics | | |
|---|---|---|
| | Tolerance | VIF |
| Self-kindness | 0.856 | 1.168 |
| Self-judgement | 0.576 | 1.737 |
| Humanity | 0.952 | 1.050 |
| Isolation | 0.998 | 1.00 |
| Mindfulness | 0.908 | 1.102 |
| Over-identified | 0.908 | 1.102 |

Tolerance statistics and variance inflation factor were evaluated. A high value of 0.1 for tolerance and less than 10 for the variance inflation factor indicates no problem in fitting the regression model. The results of the statistics indicate that there is no harmful alignment between the independent variables. Considering all the evaluations, the data can be considered appropriate for the implementation of the regression model and the obtained results can be considered valid. Therefore, the conditions of the regression test are provided:

**Table 6**: Stepwise Regression Results for Predicting Anxiety based on Self-Compassion Components

| Steps | Predictive Variables | R | R2 | B | Beta | T | P |
|---|---|---|---|---|---|---|---|
| First step | Over-identified | 0.274 | 0.075 | -0.157 | -0.274 | -4.129 | 0.001 |
| Second step | Over-identified | 0.305 | 0.093 | -0.153 | -0.265 | -4.07 | 0.001 |
| | Isolation | | | 0.157 | 0.135 | 2.05 | 0.042 |

Finally, in answer to the question of whether the components of self-compassion have the ability to predict anxiety and to determine the share of each predictor variable in the prediction, stepwise regression was used. As the above table shows, in the first step the over-identified entered and the correlation coefficient value is 0.274. In the second step, the isolation

entered the equation and the correlation coefficient increased to 0.305, the other components of self-compassion have been excluded from the final equation because they did not increase the correlation. In addition, to determine the contribution of each dimension of self-compassion to anxiety based on regression coefficients in the second step, it can be stated that the value of over-identified and isolation is -0.265 and 0.135, respectively.

**DISCUSSION**

The aim of this study was to investigate the relationship between anxiety and self-compassion in patients recovered from Covid-19 in Isfahan. The results showed that the level of anxiety in patients recovered from Covid-19 is at a low level. Existence of anxiety in individuals during the epidemic in Iran India, Bangladesh, Italy, Spain in the previous studies have shown that it can be due to isolation and quarantine or fear of re-infection. Fear of a fatal disease can also cause anxiety. Hence, most of the patients recovered from Covid-19 fear the deterioration, disability, or even sudden death.

In this regard, the results of a study by Moghanibashi-Mansouria as "Assessing the Level of Anxiety in Iranians during the Outbreak of Covid-19" shows the increase of anxiety in the community during the outbreak of Covid-19. In the study, 10,754 ordinary people of the community electronically completed a three-part questionnaire including demographic information, Covid-19 information and anxiety assessment, and after analyzing the data, the results showed that anxiety levels are higher among women, people who follow Covid-19 news, and people whose friend, or family member has been infected with Covid-19. In this regard, the researcher suggests the employment of treatment system of psychological interventions, especially in high-risk groups to reduce the anxiety. Patnike et al. (2020) also assessed the anxiety of 505 Indian adults (over 18 years of age) by sending a pandemic-related anxiety assessment questionnaire (used in the Ebola and H1N1 pandemics). The researchers provided the electronic form of the questionnaire to the participants via email or WhatsApp. After receiving the answers, the results were analyzed by SPSS 20 and the results showed that 41.6% of people were anxious to be infected again, 50.1% were anxious about the infection of family members, and 56.7% of people were anxious to meet others. In the meantime 80% of people used masks and 96.8% followed hand hygiene (hand washing). Finally, this study manifested that the Covid-19 pandemic is more than a concern and has caused anxiety among Indian adults. In this study, the researcher suggested that online education may be effective in improving this situation. Also in another study, Sharma et al. (2020) assessed the psychological status, anxiety level and depression of people who have been in quarantine during the outbreak of Covid-19. Researchers designed an online questionnaire including demographic information, social status, level of anxiety and depression, and psychological status.

This questionnaire was completed by 181 participants with an average age of 21 to 30 years old. The general health of the participants was relatively good, but their social status was often poor, which the researcher said could be due to government laws or the quarantine situation during the Covid-19 Pandemic. The results showed that 60.8% of the participants were often nervous and 50% of them showed symptoms of anxiety and depression. The final results of the study indicate the existence of negative emotions (anxiety, depression and social status) in people who were in quarantine, which leads to a decrease in quality of life and life satisfaction. The prevalence of Covid-19 has also been measured in other groups of the community. For example, Anxiety and stress in high school students during the Covid-19 epidemic were assessed. 116 students (72 males and 44 females) completed the PSS-4 and PHQ-4 questionnaires and then evaluated data demonstrated that 37% of the samples were anxious and 31% were depressed. Moreover, although the level of stress of university students was not significantly different than students who went to school, the level of anxiety and depression of university students were higher than students who went to school, and especially higher in women than men.

In addition to anxiety, the present study also examined the rate of self-compassion in patients recovered from Covid-19, and the results showed that the mean score of self-compassion in patients recovered from Covid-19 is above average. In this regard, a study examining the effects of quarantine and mental health during the outbreak of Covid-19 disease in Spain showed

that 47% of participants were at a high level of self-compassion, 44.39% at a normal level and 8.07% at a low level. In the present study, all components except the components of isolation and over-identified were evaluated above the average level. The isolation component is at the intermediate level and the over-identified component is below the average level. Maria Elena et al. (2021) state that the effects of self-compassion may be due to the various concepts and components that are included in it. For example, the component of self-kindness can enhance the feeling of well-being, the component of humanity reduces the feeling of loneliness caused by quarantine, and the component of mindfulness leads to the diagnosis and acceptance of distress, and these components together strengthen compassion and improve mental state. The results also show an inverse relationship between anxiety and self-compassion, and the studies of Maria and Mohammadpour has also shown an inverse relationship between anxiety and compassion. Similar studies show a positive effect of compassion on mental health and stress. In fact, compassion can be considered as a protective factor against mental disorders.

There is a significant negative relationship among the components of self-kindness, self-judgment, and over-identified with anxiety of which, over-identified is more significantly related to anxiety. There is also a positive and significant relationship between isolation and anxiety. In contrast, no significant relationship was found between the components of humanity, mindfulness and anxiety. Mohammadpour et al. (2020) state that there is a significant difference in the components of isolation and self-kindness in people who are afraid of Covid-19 and people who are not afraid of it. Also there is a positive relationship between self-compassion and humanity and a negative relationship between self-judgment and fear of Covid-19; besides, the researcher interprets this as when people who are constantly blaming themselves and pay less attention to their needs and environmental conditions and therefore they experience less fear and anxiety in the Covid-19 epidemic, but this finding contradicts one of the effects of self-compassion, which is to create a sense of self-worth.

The relationship between anxiety and self-compassion can be justified given that compassion can affect people's emotions; self-compassion automatically leads to the deactivation of the threat system and the activation of the self-relaxation system and a protective factor against Negative emotions and enhances emotional resilience. So, the improvement of compassion can leave positive effects on negative emotions including anxiety and act as an effective factor in completing the treatment process, rehabilitation and decreasing the physical or psychological effects in patients recovered from Covid-19 who went through tension.

According to the results of the study of Adicke and Sedikides, (2009) self-compassionate people experience less pain, suffering, depression and anxiety, and more life satisfaction. Other studies have shown that compassion leads to life satisfaction, optimism, more self-acceptance and improve in one's mental state; furthermore, self-compassionate people have more compromise and less confusion. According to what has been said so far, and due to the inverse relationship between anxiety and self-compassion, psychological interventions related to improving self-compassion in patients with or recovered from Covid-19 or other parts of the society may be able to reduce anxiety by improving self-compassion during the Covid-19 pandemic.

No study has been carried out on the interventions based on compassion in this group of patients so far as the researcher suggests; still, the effect of some other interventions to reduce anxiety in different groups of the community during the Covid-19 pandemic has been investigated. For example, Sun et al. (2021) examined the effect of psychological interventions on anxiety symptoms in patients with Covid-19 isolated in the hospital. The results of this study indicate that patients' anxiety has significantly improved after receiving psychological interventions, so

psychological interventions have been able to reduce anxiety and subsequently can be used to rehabilitate, maintain well-being and control Covid-19 disease in this The group of patients. Also, the effect of yoga exercises on self-management and well-being associated with Covid-19 were evaluated in another study, which ultimately the results showed that yoga exercises can be considered as an effective solution to anxiety and depression and stress and well-being of Covid-19 patients.

To sum it up, based on the results of this study, there is an inverse relationship between anxiety and self-compassion in patients recovered from Covid-19; hence, by improving the self-compassion, the amount of anxiety in these people can be reduced. Following the reduction of anxiety, the treatment process is accelerated and the physical and psychological complications are reduced, which in turn can lead to a reduction in treatment costs.

## REFERENCES

1. Farnoosh G, Alishiri G, Zijoud SRH, Dorostkar R, Farahani AJ. Understanding the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease (COVID-19) based on available evidence - A narrative review. Journal of Military Medicine. 2020.

2. Chen J, Qi T, Liu L, Ling Y, Qian Z, Li T, et al. Clinical progression of patients with COVID-19 in Shanghai, China. J Infect. 2020;

3. Paraskevis D, Kostaki EG, Magiorkinis G, Panayiotakopoulos G, Sourvinos G, Tsiodras S. Full-genome evolutionary analysis of the novel corona virus (2019-nCoV) rejects the hypothesis of emergence as a result of a recent recombination event. Infect Genet Evol. 2020

4. Rosell-Murphy M, Bonet-Simó JM, Baena E, Prieto G, Bellerino E, Solé F, et al. Intervention to improve social and family support for caregivers of dependent patients: ICIAS study protocol. BMC Fam Pract. 2014;

5. Li S, Wang Y, Xue J, Zhao N, Zhu T. The impact of covid-19 epidemic declaration on psychological consequences: A study on active weibo users. Int J Environ Res Public Health. 2020

6. Kim SW, Su KP. Using psychoneuroimmunity against COVID-19. Brain, Behavior, and Immunity. 2020.

7. Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. The Lancet Psychiatry. 2020.

8. Liu K, Chen Y, Wu D, Lin R, Wang Z, Pan L. Effects of progressive muscle relaxation on anxiety and sleep quality in patients with COVID-19. Complement Ther Clin Pract. 2020

9. Liu S, Yang L, Zhang C, Xiang YT, Liu Z, Hu S, et al. Online mental health services in China during the COVID-19 outbreak. The Lancet Psychiatry. 2020.

10. Shahed-Haghghadam H, Fathi-Ashtiani A, Rahnejat A-M, Ahmadi-Tahour Soltani M, Taghva A, Ebrahimi M-R, et al. Psychological Consequences and Interventions during the COVID-19 Pandemic: Narrative Review. J Mar Med. 2020

11. Tang NKY, Salkovskis PM, Poplavskaya E, Wright KJ, Hanna M, Hester J. Increased use of safety-seeking behaviors in chronic back pain patients with high health anxiety. Behav Res Ther. 2007;

12. Shahyad S, Mohammadi MT. Psychological impacts of Covid-19 outbreak on mental health status of society individuals: A narrative review. Journal of Military Medicine. 2020.

13. Alipour.a, Oraki M, Kharaman A. Review of the Neurological and Cognitive Effects of the Covid -19. Neuropsychology. 2020;5:135–46.

14. Dorman-Ilan S, Hertz-Palmor N, Brand-Gothelf A, Hasson-Ohayon I, Matalon N, Gross R, et al. Anxiety and Depression Symptoms in COVID-19 Isolated Patients and in Their Relatives. Front Psychiatry. 2020