

Prediction of Depression, Anxiety, and Stress in the Period of Social Distancing Due to Coronavirus Based on Psychological Flexibility, Dysfunctional Attitude, and Coping Strategies

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Abstract

Introduction and Objectives

The COVID-19 pandemic in 2020 and the use of quarantine to prevent it have increased psychological reactions like depression, anxiety, and stress in the general population. Therefore, the need to identify variables that can affect these psychological reactions is felt more than ever. The aim of this study was to predict the rate of depression, stress, and anxiety during quarantine based on psychological flexibility, dysfunctional attitude, and coping styles.

Method

The research design was descriptive-correlational and the statistical population included all students who were active in social media. A total of 501 students accessed the call for completion of questionnaires on online media, including Instagram, and completed prepared

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questionnaires in the Google Form format.

Measures included the Depression, Anxiety, and Stress Questionnaire (DASS-21, 1995), the Revised Dysfunctional Attitude Scale (DAS-26, 1978), the Acceptance and Practice Questionnaire (AAQ-II, 2005), and the Lazarus and Folkman Coping Strategies Questionnaire (CSQ, 1984).

Results

Psychological inflexibility, dysfunctional attitudes, and maladaptive coping strategies predicted depression, anxiety, and stress in a positive way, but problem-oriented coping strategies only showed an inverse relationship with depression. In regression analysis, the variable of psychological inflexibility had the greatest effect on explaining depression, anxiety, and stress.

Discussion and Conclusion

It can be concluded that teaching psychological flexibility and cognitive reconstruction can be useful in reducing depression, anxiety, and stress during the quarantine. Teaching problem-solving strategies can also have positive effects on reducing depression.

Keywords: Cognitive Dysfunction, Coping Skills, Corona Virus, Pandemics, Psychological Flexibility, Psychological Stress, Social Distance

Introduction

The COVID-19 pandemic was first diagnosed in Wuhan, China, and spread rapidly to other cities and countries (Hou et al., 2020). So far, the disease has spread to more than 200 countries around the world. The disease has caused general panic, psychological distress, tension, anxiety, fear, and hopelessness among the affected population and the general public (Yan & Huang, 2020). In addition to psychological effects, it has also led to significant cases of mortality (Song, 2020).

From the outbreak of coronavirus in 2019 to the time of writing this article, quarantine has been accepted as a comprehensive control strategy (Lu, Nie & Qian, 2020), because by reducing the degree of physical proximity between people, the number of infected people was effectively reduced (Yan & Huang, 2020; Luo, 2019). Conversely, quarantine conditions have led to a high prevalence of psychological distress among the population (Chatterjee & Chauhan., 2020;

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Casagrande, Favieri, Tambelli & Forte, 2020).

One study found that psychological problems, including depression, anxiety, stress, and poor quality of life, could persist for months or even years after the outbreak, especially for those who become infected with the virus or are exposed to it directly through their job roles (Dawson & Golijani-Moghaddam, 2020).

Depression refers to low levels of positive emotions such as boredom, hopelessness, lack of energy, inability to understand pleasure, and decreased motivation. Anxiety refers to a combination of autonomic nervous system arousal, situational anxiety, and mental experience of tension (Lovibond & Lovibond, 1995; Oei, Sawang, Goh, Mukhtar, 2013) and stress refers to people's perception of imaginal negative events (Kuroda, 2016).

Research on diverse populations has shown that psychological flexibility is one of the factors that has been associated with reduced stress, anxiety, depression, and improvement in physical health (Dawson & Golijani-Moghaddam, 2020).

Psychological flexibility refers to the ability to fully communicate with the present moment and the thoughts and feelings present in that moment, the ability to recognize situational demands and subsequently change behavior in order to adapt to the situation and to achieve goals and values without using defenses (Dawson & Golijani-Moghaddam, 2020, Lucas & Moore, 2020). In quarantine conditions, psychological flexibility can be considered as understanding and accepting the acute and long-term challenge and the way a person can cope with the disease (Dawson & Golijani-Moghaddam, 2020).

Coping strategies are the ways people react to stressful situations and life problems and include thoughts and behaviors that are used to manage emotional and logical desires in stressful situations (Moasheri, Ahangari, Norozi, Shayesteh, 2017; Li, Delvecchio, Lis, Nie, Di Riso, 2016). The nature of coping strategies can be divided into positive and negative dimensions. Positive coping strategies include adaptive and problem-oriented coping strategies and negative or non-adaptive coping strategies include avoidance and emotion-oriented strategies (Dumont & Provost, 1999). A significant negative correlation has been reported between problem-oriented coping strategies and depression/anxiety (Cohen, 2020, Nagase et al., 2009; Hoffman, 2017; Mahmoud & Staten, 2012). The use of maladaptive coping strategies during the quarantine period can lead to increased

depression, anxiety, and stress (Lam et al., 2020; Brooks et al., 2020).

Dysfunctional attitudes include cognitive distortions that lead to negative assessments of oneself, the world, and the future (Cao, Huang, Zhu, Zhang, 2020). A positive attitude towards controlling the epidemic Covid-19 is associated with lower levels of depression and higher levels of happiness (Lu, Nie, Qian, 2020).

One study in Italy and another in China showed that the pandemic of Covid-19 is a risk factor for the spread of psychological disorders. In these studies, it has been suggested that the development of psychological interventions is needed to minimize the short-term and long-term consequences of the COVID-19 pandemic disease (Casagrande, Favieri, Tambelli, Forte, 2020). Quarantine is often an unpleasant experience because it restricts one's social interactions and freedom of action and disturbs one's security of mind about the disease and its consequences (Cao, Huang, Zhu, Zhang, 2020). Such experiences can lead to the development of dysfunctional attitudes toward the disease and, consequently, more depression, anxiety, stress, and irritability (Cao, Huang, Zhu, Zhang, 2020; Yondem, 2007). These early psychological symptoms can in themselves lead to more mental stress and a sequence in the production of psychological symptoms (Kuroda, 2016).

In general, the results of various studies show that the epidemic of COVID-19 has dramatically changed people's daily lives and it has had many psychological effects(8). Hence, finding how to help people overcome traumatic and stressful reactions and get out of a psychological crisis has become a public concern that must be addressed in a timely manner (Hou et al. 2020).

Therefore, it is important to identify the psychological processes and concepts that can help to protect the well-being and psychological health of individuals in these exceptional circumstances (Dawson, Golijani-Moghaddam, 2020). In this regard, the present study was designed and conducted with the aim of predicting the rate of depression, stress, and anxiety in the quarantine period based on psychological flexibility, dysfunctional attitude, and coping styles.

Method

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Measures

The Dysfunctional Attitude Scale (DAS-26): This questionnaire was developed by Weisman and Beck (1978) to assess dysfunctional thoughts and the underlying dysfunctional assumptions of depression. The DAS-26 has a Likert scale with seven options that are scored from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicate more cognitive distortions and vulnerabilities. People who score above 82 are considered high-risk people in terms of cognitive vulnerability. In an Iranian study, internal consistency in terms of Cronbach's alpha for this instrument was reported to be equal to 0.92. The average correlation between items was also reported to be 0.30 (Ebrahimi, Neshatdoost, Kalantari, Molavi, Asadollahi, 2008).

The Acceptance and Action Questionnaire (AAQ-2): This questionnaire contains 10 items and measures the level of psychological flexibility/experiential avoidance. This scale is associated with experiential avoidance and a desire to perform an activity despite unwanted thoughts. Participants are asked to rate each item according to their experience on a scale between 1 (never applies to me) to 7 (always applies to me). Lower scores indicate less experiential avoidance and a tendency to do work and activity in the presence of negative thoughts and feelings, as well as psychological inflexibility. The mean of Cronbach's alpha of this scale was 0.84 and the test-retest reliability after 3 months was equal to 0.81 and after 12 months was equal to 0.79 (Bond et al., 2011). Cronbach's alpha in the Persian version is equal to 0.87 and the test-retest reliability coefficient is equal to 0.80 (Izadi, Neshat Doost, Asgari, Abedi, 2014). The divergent validity of this scale is appropriate. Also, this scale

showed a concurrent validity correlation of 0.97. However, its internal consistency was better than concurrent scales (Amanelahe, Khojastemehr, Imani, 2015).

The Depression Anxiety Stress Scales (DASS 21): The DASS-21 was designed in 1995 by Lavibond and Lavibond and is rated on the Likert scale with 4 options. The scale includes three subscales of depression, anxiety, and stress, each of which has 7 items. Participants should rate their thoughts, feelings, and behaviors over the past week on any score between 0 (never applies to me) and 3 (always applies to me). The score of each subscale is calculated based on the sum of the scores of the items in that subscale. Higher scores indicate more severe symptoms. Reliability (internal consistency) for DASS-21 and each of its subscales in terms of the alpha coefficient was reported to be 0.88 for depression, 0.82 for anxiety, 0.90 for stress, and 0.93 for the overall scale (Henry and Crawford, 2005). The test-retest reliability coefficient for stress factor was 0.80, for depression was 0.81, for anxiety was 0.78 and for the whole scale was 0.82. The validity of this tool has also been evaluated as appropriate for the Iranian population (Samani and Jokar, 2008).

The Coping Styles Questionnaire (CSQ) (13): This scale has 66 items that are scored on the Likert scale with 4 options and includes two problem-oriented and emotion-oriented strategies. High scores indicate more use of these strategies and low scores indicate less use of these strategies. Lazarus (1993) estimated the internal consistency for each coping style between 0.66 and 0.79 (Folkman and Lazarus, 1988). Alipour et al. (2010) reported the overall reliability of this scale as 0.85 (Alipour, Hashemi, Babapour, Tousi, 2010).

Results

Four hundred and eight women (81.40%) and 93 men (18.6%) participated in this study. Of these, 79% were single and 21% were married. In terms of education, 15.4% had a diploma, 51.5% had a bachelor's degree, 23.6% had a master's degree and 7% had a doctorate. Descriptive findings on the variables of psychological inflexibility, dysfunctional attitudes, coping styles, stress, anxiety, and depression are shown in Table 1.

Table 1. Means and Standard Deviation of Research Variables

Variable	Mean	Std. Deviation
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Variable	Mean	Std. Deviation
Psychological inflexibility	35.27	7.96
Dysfunctional attitudes	86.58	21.70
Problem solving strategy	46.67	13.36
Emotional strategy	37.18	8.68
Depression	6.80	5.16
Anxiety	5.88	4.32
Stress	9.45	4.74

The Pearson correlation coefficients between each variable are as shown in Table 2. The data showed that there is a significant positive correlation between psychological inflexibility and dysfunctional attitudes, depression, stress, and anxiety. There is a significant negative correlation between psychological inflexibility and problem solving strategy. There is a significant positive correlation between dysfunctional attitudes and depression, stress, and anxiety. There is a significant negative correlation between dysfunctional attitudes and problem solving strategy. There is a significant positive correlation between depression and stress, and anxiety. There is a significant positive correlation between stress and anxiety. There is a significant positive correlation between anxiety and stress. There is a significant positive correlation between problem solving strategy and emotional strategy. There is a significant positive correlation between emotional strategy and stress.

Table 2. Pearson Correlation coefficients of variables

variables	1	2	3	4	5	6
1-Psychological inflexibility	-					
2-Dysfunctional attitudes	0.60**	-				
3- Depression	0.62**	0.59**	-			
4- Stress	0.65**	0.58**	0.58**	-		
5- Anxiety	0.54**	0.47**	0.47**	0.71**	-	
6- Problem solving strategy	-0.18**	-0.21**	-0.32**	-0.11*	-0.039	-
7-Emotional strategy	0.11*	0.087	0.11*	0.18**	0.18**	0.57**

** Correlation is significant at the 0.01 level (2-tailed).

To predict depression, anxiety, and stress based on psychological inflexibility and dysfunctional attitudes and coping styles, a simultaneous multiple regression method was used. First, the assumptions of this test such as normality, residual independence, and non-alignment of predictor variables were examined. Kolmogorov-Smirnov test was used to check the normality of the data. Considering that the significance level of the Kolmogorov-Smirnov test was more

than 5% in all variables, it was concluded with 95% confidence that the distribution of the variables was normal. The residual independence test (no correlation between errors) was also performed with the Durbin- Watson test. The value of this test fluctuates between 0 and 4 and the values between 1.5 to 2.5 indicate the independence of the residuals. Finally, tolerance and variance inflation indices were used to examine the non-alignment of predictor variables. Since the tolerance coefficient was close to 1 and the variance inflation was less than 2, the assumption of non-alignment of the predictor variables was also established.

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Table 3. Depression, anxiety, and stress Psychological inflexibility regressed on dysfunctional attitude and coping strategies

Dependent variable	Predictors	B	β	t	sig	R	R ²	F	sig
Depression	Psychological inflexibility	0.24	0.37	9.43	0.001	0.71	0.51	132.91	0.001
	Dysfunctional attitudes	0.60	0.28	7.08	0.001				
	Problem solving strategy	-0.11	-0.30	-7.52	0.001				
	Emotional strategy	0.11	0.19	4.92	0.001				
Anxiety	Psychological inflexibility	0.21	0.40	8.65	0.001	0.58	0.34	64.78	0.001
	Dysfunctional attitudes	0.006	0.22	4.79	0.001				

Dependent variable	Predictors	B	β	t	sig	R	R ²	F	sig
	Problem solving strategy	0.006	0.01	0.41	0.682				
	Emotional strategy	0.05	0.10	2.32	0.020				
Stress	Psychological inflexibility	0.27	0.46	11.42	0.001	0.70	0.49	123.04	0.001
	Dysfunctional attitudes	0.06	0.28	6.95	0.001				
	Problem solving strategy	-0.01	-0.04	-1.03	0.229				
	Emotional strategy	0.07	0.13	3.19	0.002				

Discussion and Conclusions

The COVID-19 pandemic has changed people's daily lives and led to several negative psychological consequences. To reduce these consequences, it is necessary to identify effective variables which should be considered in planning psychological interventions. Hence, the present study aimed to predict depression, stress, and anxiety during the quarantine period based on psychological inflexibility, dysfunctional attitude, and coping strategies.

Based on the findings, psychological inflexibility was able to positively predict the rate of depression, anxiety, and stress. This indicates that the increase in psychological inflexibility is associated with an increase in depression, anxiety, and stress. In other words, the increase in psychological flexibility is associated with a decrease in depression, anxiety, and stress. This finding was consistent with the results of Bardeen and Fergus (2016) according to which psychological inflexibility, especially if associated with high levels of cognitive fusion, can predict high levels of depression, anxiety, and stress (Bardeen, Fergus, 2016). This result is also consistent with the result of Dawson and Golijani-ggg aaddress 000000 dddd cccc h reported that psychological flexibility is associated with greater health and well-being and, conversely, psychological inflexibility is associated with high levels of stress.

Another finding was the significant positive relationship between depression, anxiety, stress, and dysfunctional attitudes. This indicates that dysfunctional attitudes increase depression, anxiety, and stress. According to Beck's cognitive model, dysfunctional attitudes play a

role in the onset, relapse, and recurrence of depression (Ebrahimi, Neshatdoost, Kalantari, Molavi, Asadollahi, 2008, Brouwer, Williams, Forand, DeRubeis, Bockting, 2019) and lead to depression by creating mental stress (Kuroda, 2016). Findings have shown that dysfunctional attitudes predict an increase in depressive symptoms (Cao, Huang, Zhu, Zhang, 2020) and a recurrence of depression after cognitive-behavioral therapy (CBT) (Brouwer, Williams, Forand, DeRubeis, Bockting, 2019). Dysfunctional attitudes also play a role in the development of anxiety (Bashiri, Dehghan, Saeedi, MehrabiPari, ShafieiKohnehsahri, Abaszadeh, 2018) and have shown a positive and significant correlation with anxiety (Ebrahimi, Neshatdoost, Kalantari, Molavi, Asadollahi, 2008).

Another finding of this study was the significant negative relationship between problem-oriented coping strategies and depression. This means that the use of problem-oriented coping strategies decreases depression. This is consistent with the results of several other studies (e. g. Cohen, 2020, Nagase et al., 2009; Hoffman, 2017).

The findings also indicated a negative relationship between problem-oriented strategies and stress. This indicates that the use of problem-oriented strategies decreases stress. Similar findings have been reported by other researchers (e.g. Hoffman, 2017; Mahmoud & Staten, 2012). However, problem-oriented strategies did not correlate with anxiety. This might indicate that problem-oriented strategies do not considerably reduce anxiety during the quarantine period. In fact, quarantine during the period of the COVID-19 pandemic is a long-term problem-oriented strategy that in the short term causes anxiety. Therefore, it is not surprising to find no relationship between problem-oriented strategies and anxiety.

Another finding of the present study was the relationship between emotion-coping strategies and variables of depression, anxiety, and quarantine stress. This indicates that the use of emotion-coping strategies increases depression, anxiety, and stress. This finding was consistent with the result of Lam et al. (2020) who found a similar relationship between emotion-coping strategies and psychological symptoms like depression and anxiety.

Considering the results of this study and several other studies which have shown that dysfunctional attitudes, coping strategies, and mental flexibility affect general and physical health as well as mental


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health (Mostafae, Roshan, Jodeiri, 2015; Musarezaie et al., 2015; Flanagan, Jaquier, Overstreet, Swan, Sullivan, 2014; Kashdan & Rottenberg, 2010), it seems that the authorities and individuals involved in the fight against Covid-19 should pay as much attention to the physical health of people as to their mental health and consider appropriate measures and programs to increase psychological flexibility, reduce dysfunctional attitudes, and increase effective coping strategies.

The result of this study might not be generalized to the whole population because due to the quarantine conditions caused by coronavirus, sampling was carried out via online communication media and the sample might not represent the whole population. Future research might compare gender and age differences in psychological inflexibility, dysfunctional attitudes, and coping strategies to provide better solutions to reduce depression, anxiety, and stress caused by quarantine conditions.

Conflict of Interests

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