Prediction of Corona anxiety based on personality characteristics and self-discipline in vaccinated people at the vaccination center of the Prophet's (PBUH) complex

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ARTICLE INFORMATION

ABSTRACT

Background and Aim: The rapid spread and epidemic, its high mortality rate and the absence of any definite and approved treatment and medicine for Corona have caused severe disorders. The aim of the current research was to predict corona anxiety based on the personality characteristics of self-care in vaccinated people at the vaccination center. **Methods:** The method of the current research is quantitative and has been implemented in a descriptive-correlational way, and it is practical in terms of the purpose of this research. The study population of this research is all the people who visited the vaccination center of the Holy Prophet (PBUH) Complex of West Tehran Azad University in the Fall 2021. Among these people, 400 vaccinated people who received the second dose were selected as a sample based on the amount calculated by Gpower software in a simple random manner. Personality, self-diagnosis and corona anxiety tests were taken from the subject. The data were analyzed using the statistical method SEM. **Results:** The results show that Corona anxiety is predicted based on personality traits and self-diagnosis. The path coefficient of neuroticism ($P<0.001$, $\beta=0.419$), extroversion ($P=0.002$, $\beta=0.160$) has a positive and significant effect on corona anxiety and flexibility ($P<0.001$), $\beta=-0.23$) and pleasantness ($P<0.001$, $\beta=-0.332$) have a significant and negative effect on Corona anxiety. Also, the path coefficient of the effect of responsibility on corona anxiety has no significant effect ($P=0.464$, $\beta=0.036$). The path coefficient of the effect of self-care on corona anxiety has a positive and significant effect ($P<0.001$, $290/ \beta = 0$). **Conclusion:** During the corona virus epidemic, the media plays an active role in informing about the news and events caused by this epidemic. Therefore, these notifications will lead to high physiological stimulation and, as a result, negative emotions of people, which leads to people not being successful in regulating their emotions and increases self-morbidity. Accordingly, self-diagnosis is also associated with an increase in anxiety about Corona. Therefore, it is not far from the expectation that self-diagnosis predicts corona anxiety in vaccinated people.

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Introduction

One of the most important issues of human beings since the beginning of creation has been to maintain survival, and anything that threatens human survival in any way causes anxiety in humans. Stress and anxiety are defensive reactions against threats to maintain the survival of the species. One of the things that threaten a person's health and survival during his life are diseases (Ali Puro et al., 2019). Throughout history, viruses have always been among the factors that harm human health. Epidemic diseases such as plague, smallpox, tuberculosis have caused the death of many people. These events have been engraved in the historical memory of mankind and this archetype causes the unconscious fear of pandemic viruses (International Health Regulations, 2018). In 2019, the world suddenly faced an unknown virus epidemic. This virus, which was one of the subgroups of the corona family viruses, was named Covid-19. This virus started in Wuhan, China and quickly spread all over the world (Barrow, 2020). This virus is one of the highly contagious viruses that are shared between humans and animals and are quickly transmitted and cause developing lung lesions. It can lead to multi-organ failure in a short period of time, thus threatening human health worldwide (Haung et al., 2020). The outbreak of Covid-19 has created an emergency situation all over the world, because the rapid spread and epidemic, its high mortality rate and the absence of any definite and approved treatment and medicine for this disease have caused severe disorders. (Yang, et al., 2020).

The severity of disease complications in people's bodies and whether the disease leads to death or not, as well as the reaction to the vaccine, also depends on the genetic characteristics of people. For example, those who injected the vaccine and experienced acute symptoms means that the vaccine was not compatible with their genome. In the science of genetics, there is a problem called genomics (personalized medicine), which causes the type of reaction of people's bodies to be different from each other (Farhoud, 2021). That is, in the body of some, more severe symptoms occur in some, weaker symptoms in some, more psychological disturbance in some, and less in some (Ali Vardi, 2018). Pandemic viruses cause anxiety and stress in people due to the historical record of mankind and the frightening experience of humans from deaths caused by virus epidemics. In other words, the disease pandemic itself is anxiety-provoking, but the epidemic of the Covid-19 virus was more anxiety-provoking than other viruses because this virus was unknown and there was no vaccine or treatment for it. One of the types of anxiety caused by this pandemic is health anxiety or self-diagnosis (Alipour et al., 2019).

Self-diagnosis is a disorder in which a person considers the natural symptoms of his body as signs of illness and considers himself sick when he is physically healthy. Health concern is a kind of concern and preoccupation with physical, psychological and social aspects that people have about issues related to their health or even others (Andalib & Mahmoud Alilou, 2019). Health concerns increase the likelihood of mental disorders, including anxiety and depression, and increase the use of psychological, health and medical services, and such people constantly have worries and anxieties about their health and constantly check their physical health and vital signs. Personality characteristics of people are effective in the occurrence of such problems. Perhaps personality can be considered the most fundamental subject of psychological science (Watson et al., 2022). The word personality, which is read in the Latin language Personalite and in the Anglo-Saxon language personality, has its roots in the Latin word persona. This word refers to the mask that theater actors wore on their faces in ancient Greece. Therefore, the main and primary concept of personality is an outward and social image based on the role a person plays in society. That is, in fact, a person presents a character to his society so that the society can evaluate him based on that (Shamloo, 2015).

In order to reduce the spread of this disease, news agencies began to inform about the signs and symptoms and prevention strategies of this disease during the pandemic, and this caused people to be exposed to the news of the disease 24 hours a day. Constantly exposed to these news in people who were ready for self-diagnostic disorder in terms of personality suffered from this disorder (Bakhtiari, 2021). After the start of the covid-19 pandemic, pharmaceutical companies investigated and developed a vaccine. The first Covid-19 vaccine was delivered to the global community outside the clinical trial setting on December 8, 2020.

By December 8, 2021, one year after the first vaccine was offered, 55.9% of the world's population had received at least one dose of the Covid vaccine; And 45.5 percent were estimated to have received two doses and 4.3 percent three doses, known as booster doses. Due to the incredible pace of production of Covid-19 vaccines in 2020 and their subsequent distribution in 2021, more than 3.5 million deaths from Covid-19 have been reported globally since the first vaccine was administered (Watson et al., 2022). In Iran, in addition to importing various vaccines, vaccines were also produced. Each type of vaccine may cause different side effects in different people. These complications may cause anxiety problems in people with susceptible personality traits. For this reason, in this research, the prediction of corona anxiety based on personality characteristics and self-sickness in vaccinated people has been discussed.

Method

The present research was quantitative and was carried out in a descriptive-correlational way, and it was practical in terms of the type of purpose of this research. The statistical population included all the people who went to the Vaccination Center of the Holy Prophet (PBUH) Complex of West Tehran Azad University in the fall of 1400 and injected the second dose of Corona vaccine, which is reported to be more than 500 people. G*power software was used to determine the minimum required sample size. The sample size was calculated to be 400 people at the confidence level of 95% with the test power of 0.8 and according to the effect size at the level of 0.02 based on Cohen's division, considering that the number of predictor variables was 6 variables.

Materials

1. NEO personality traits scale. This questionnaire was prepared by McCree and Costa (1985). Its shortened version called NEO-FFI has only 60 questions and scores only five main personality factors. In personality trait theories, it is believed that if we know a person's personality traits, we can predict his behavior in different situations. In the five-factor model of personality, thousands of human personality traits are collected in five main factors and each factor has six sub-categories. The five main personality factors are: neuroticism (N), extroversion (E), eagerness for new experiences (O), agreeableness (A), conscientiousness (C). The NEO-FFI personality questionnaire was administered by McCree and Costa on 208 American students three months apart, and its reliability coefficients were between 0.83 and 0.75. The long-term validity of the Neo test has also been evaluated. A 6-year longitudinal study of scales of neuroticism, extroversion, and eagerness to experience showed reliability coefficients of 0.68 to 0.83 in self-reports as well as in couples' reports. The reliability coefficient of the two factors of adaptability and conscientiousness was 0.79 and 0.63, respectively, two years apart (Fathi Ashtiani, 2020). In the standardization of the NEO test, which was conducted by Garosi Farshi (2001) on a sample of 2,000 students, the correlation coefficient of the 5 main dimensions was reported between 0.56 and 0.87. Cronbach's alpha coefficients in each of the main factors of neuroticism, extroversion, openness, adaptability and conscientiousness are 0.86 respectively. 0.73, 0.56, 0.68 and 0.87 were obtained. To check the content validity of this test, the correlation between two personal report forms (S) and observer evaluation form (R) was used, the maximum correlation was 0.66 in the extroversion factor and the minimum was 0.45 in the compatibility factor. (Fathi Ashtiani, 2020). Questions are answered by the individual on a 5-point Likert scale. 12 questions are assigned for each factor. Each of the questions has 5 options "I completely agree", "I agree", "I have no opinion", "I disagree" and "I completely disagree". which scores zero to four are assigned to it. Each factor has 12 items and scores range from zero to 48. Five separate scores are obtained by summing the scores of each question related to each item.

2. Corona anxiety questionnaire. This tool was prepared and validated by Alipour, Gadami, Alipour, Abdullazadeh in 2019 to measure the anxiety caused by the spread of the corona virus in Iran. The final version of this tool has 18 items and 2 components (factors). Items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical symptoms. This tool is scored on a 4-point Likert scale (never = 0, sometimes = 1, most of the time = 2, and always = 3); Therefore, the highest and lowest scores obtained by respondents in this questionnaire are between 0 and 54. High scores in this questionnaire indicate a higher level of anxiety

in people. The reliability of this tool was obtained using Cronbach's alpha method for the first factor of 0.879, for the second factor of 0.861 and for the entire questionnaire as 0.919 (Alipour et al., 2019).

3. Self-diagnosis questionnaire. This questionnaire has 36 questions presented by Evans (1980) and is graded on a Likert scale from 0 to 5. Based on the score obtained, people are placed in healthy (0-20), borderline (21-30), mild (31-40), moderate (41-60) and severe (above 60) groups. In the research of Arshadi (2007), the validity of content, form and criterion of this questionnaire has been evaluated. Reliability or reliability of a tool is its degree of stability in measuring whatever it measures, i.e. how much the measuring tool gives the same results under the same conditions. Cronbach's alpha coefficient calculated in Arshadi (2007) research for this questionnaire was estimated to be above 0.7.

Implementation
From among all the people who referred to the vaccination center of the Prophet's (PBUH)

Complex, Islamic Azad University, West Tehran Branch, 400 people who met the criteria for entering the study were selected by simple random drawing of the names registered in the system, and the questionnaires were provided to them. Finally, the collected data were analyzed by structural equation model method and SPSS and LISREL software.

Results
In order to better understand the society studied in the research, it is necessary to describe these data before analyzing the statistical data. Also, the statistical description of the data is a step towards identifying the pattern governing them and a basis for explaining the relationships of the variables that are used in the research. Therefore, in this study, 400 people from all the people who referred to the vaccination center of the Prophet (PBUH) Complex, Islamic Azad University, Tehran West Branch, with an average age of 28.41 ± 2.57 years and in the age range of 20 to 63 years were examined.

Table 1. Descriptive indices (mean and standard deviation) of the research variables in people referring to the vaccination center of the Prophet's (PBUH) Complex, Islamic Azad University, Tehran West Branch

Variable	Mean	SD	Min - Max	Skewness	Kurtosis
Neuroticism	32/70	4/35	43-19	-0/189	0/301
Extroversion	35/82	4/95	47-22	-0/011	-0/258
Flexibility	39/90	3/97	50-28	-0/378	0/025
Being pleasant	40/04	4/58	55-26	-0/046	1/020
Responsibility	37/42	3/49	50-28	0/204	0/874
Corona anxiety	80	20/74	117-35	-0/446	-1/041
Physical symptoms	42/13	12/04	77-17	-0/381	-0/847
Psychiatric symptoms	37/95	9/26	60-16	-0/358	-0/727
Self-care	37/28	18/20	72-5	0/110	-1/088

Table (2) shows the information related to Pearson correlation between personality traits, self-morbidity and anxiety of Corona. According to the results of the correlation matrix, there is a positive and significant relationship between narcissism and the

personality traits of neuroticism and extroversion with Corona anxiety, and there is a negative and significant relationship between the personality traits of flexibility, agreeableness and responsibility with Corona anxiety (P<0.01).

Table 2. Correlation matrix between exogenous and endogenous variables of the proposed model

	1	2	3	4	5	6	7	8
1. Neuroticism	1							
2. Extroversion	0/476**	1						
3. Flexibility	-0/325**	-0/368**	1					
4. Being pleasant	-0/360**	-0/402**	0/512**	1				
5. Responsibility	-0/401**	-0/506**	0/491**	0/366**	1			
6. Corona anxiety	0/514**	0/478**	-0/355**	-0/557**	-0/367**	1		
7. Physical symptoms	0/496**	0/359**	-0/481**	-0/582**	-0/431**	0/725**	1	

8. Psychological symptoms	0/560**	0/493**	-0/412**	-0/406**	-0/496**	0/812**	0/849**	1
9. Self-care	0/399**	0/408**	-0/352**	-0/303**	-0/430**	0/699**	0/510**	0/410**

**p<0.01;*p<0.05

Before examining the structural coefficients, the suitability of the proposed model was examined. The fit of the proposed model of all the fit indices in the confirmatory factor analysis of the measurement model, the obtained values of the model fit indices indicate a good fit of the measurement model with the data. The fit indices of these patterns are shown in table (3).

Table 3. Fit model indices of the proposed and modified model of the present study									
Fitness indicators	x^2	df	p	CMIN /Df	RMSEA(CL$_{90\%}$)	PNFI	CFI	PCFI	IFI	GFI
Suggested template	7/561	5	0/182	1/512	0/036(0/01 – 0/05)	0/763	0/982	0/809	0/982	0/921

The R^2 index shows the amount of explained variance of endogenous latent variables. The values of R^2, 0.67, 0.33 and 0.19 in structural equations are described as strong, medium and weak, respectively. The coefficient of determination of the Corona anxiety variable is 0.490, which shows that all exogenous variables, i.e., personality traits and self-diagnosis, can predict 49% of the changes in Corona anxiety, which is a strong rate. Table (4) shows the standard coefficients of the paths and Figure (1) shows the proposed model of the research.
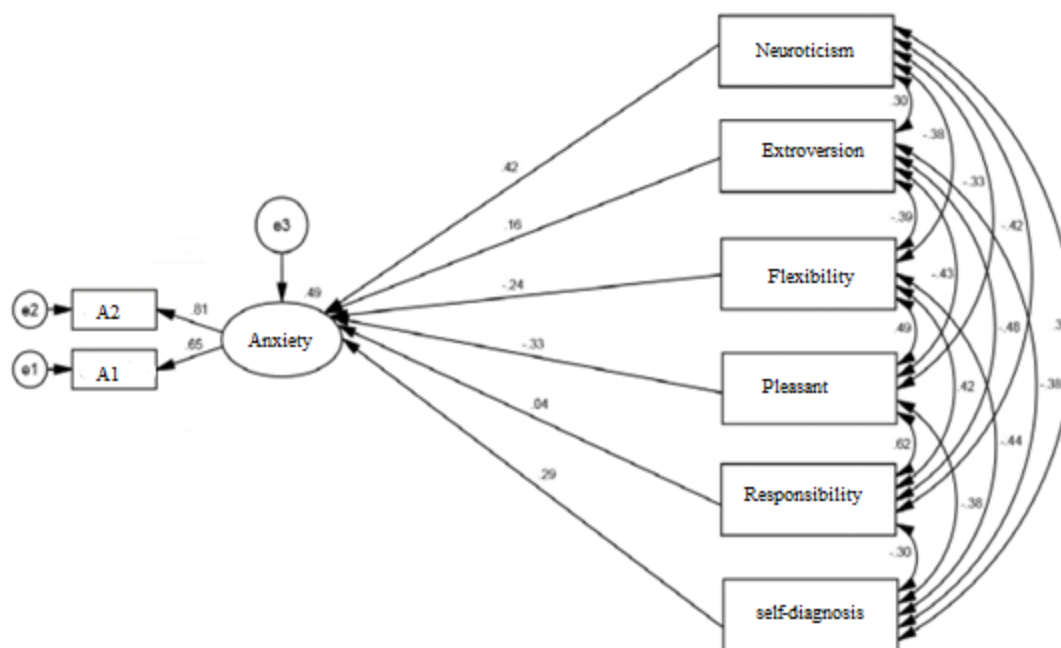

Figure 1. Standard coefficients of the proposed model of the structural relationship between personality traits and self-diagnosis on Corona anxiety

The changes of the experimental group over time in Table 5 showed that the dimensions of alexithymia in the mindfulness training group were significant in the post-test compared to the pre-test (P<0.001). A significant difference was observed in the follow-up phase compared to the pre-test (P<0.001). However, no significant difference was observed in the follow-up compared to the post-test (p<0.01). The changes of the experimental group over time showed that the dimensions of self-differentiation in the mind-awareness training group were significant in the post-test compared to the pre-test (P<0.001). In the follow-up phase, a significant difference was observed compared to the pre-test and post-test (P<0.001).

Corona anxiety is predicted based on personality traits and self-diagnosis.

In Figure (1), the numbers on the paths are path weights or betas. Among these coefficients, the highest coefficient (0.419) belongs to the path of neuroticism to corona anxiety and the weakest coefficient (0.036) is related to the path of responsibility to corona anxiety.

The results of the direct relationships of the research variables in the proposed model show that in the whole sample, all the coefficients of the path were statistically significant (except for the responsibility to Corona anxiety). Referring to table (4), you can see the standard coefficients of all paths and critical values in the proposed model.

Table 4. Standard coefficients of paths of the proposed model				
Direction	Beta	SE	Critical ratio	p
Neuroticism ---> Corona anxiety	0/419	0/201	7/854	<0/001
Extroversion ---> Corona anxiety	0/160	0/222	3/024	0/002
Flexibility ---> Corona anxiety	-0/235	0/229	-4/105	<0/001
Pleasantness ---> Corona anxiety	-0/332	0/198	6/302	<0/001
Responsibility ---> Corona anxiety	0/036	0/296	0/732	0/464
Self-care ---> Corona anxiety	0/290	0/104	3/704	<0/001

Based on the results listed in table number (4), the path coefficient of neuroticism (p<0.001, β=0.419), extroversion (p=0.002, β=0.160) has a positive and significant effect on corona anxiety. Flexibility (p<0.001, β=-0.235) and pleasantness (p<0.001, β=-0.332) have a significant and negative effect on corona anxiety. Also, the path coefficient of the effect of responsibility on corona anxiety has no significant effect (P=0.464, β=0.036). Based on the results listed in table number (4), there is a positive and significant effect of the path coefficient of self-care on corona anxiety (p<0.001, β=0.290).

Conclusion

The aim of the present study was to predict the anxiety of Corona based on personality traits and self-diagnosis in vaccinated people at the vaccination center of the Prophet (PBUH) of the Islamic Azad University, Tehran West Branch. According to the indicators estimated in the findings section, the results show that Corona anxiety is predicted based on personality traits and self-diagnosis. This finding is consistent with the results of many researches, including: Nazli et al. (2021); Ramsted et al. (2021); Murphy et al. (2021); Hesolas et al. (2021); Niksvik et al. (2021); Tashvighi et al. (2020); Pouyanfard et al. (2020); Mazloumzadeh et al. (2020). This alignment is due to the fact that the aforementioned studies also confirm the predictive role of components such as self-diagnosis and personality traits in Corona anxiety. As mentioned earlier, due to the speed of its transmission, the spread of the corona virus caused an emergency situation in global health in all countries of the world, and in addition to concern about the physical health of everyone, it caused some psychological symptoms such as anxiety caused by the corona virus. (Torna et al., 2021). Personality traits and self-diagnosis can cause people to be more affected by anxiety caused by Corona. On the other hand, anxiety can weaken the body's immune system and make them vulnerable to diseases, including corona (Chang et al., 2020); Therefore, this vicious cycle can increase the anxiety of Corona, and increasing the anxiety of Corona can make it more contagious. On the other hand, the corona virus epidemic and the lack of definitive treatment for this disease led to people experiencing a high level of anxiety. Now, people who can't take advantage of desirable personality traits such as flexibility and extroversion against these emotions; With the smallest symptom, they feel that they are infected with the coronavirus and will experience a high level of self-diagnosis (Mazloumzadeh et al., 2020).

Partially, this research included two objectives that predicted corona anxiety based on personality characteristics and self-morbidity in vaccinated people at the vaccination center. The first hypothesis believes that corona anxiety is predicted based on personality characteristics in vaccinated people. The findings showed that this hypothesis was confirmed. This finding is in line with previous researches, among other things, in that they emphasize the predictability of Corona anxiety based on personality characteristics: Kumar and Tankha (2022); Ramsted et al. (2021); Niksvik et al. (2021); Ghorbani et al. (2021); Mokazi et al. (1400) and Pouyan-Fred et al. (2020). The findings from

the analysis of the current research showed that through the personality dimensions of neuroticism, extroversion, flexibility and agreeableness, Corona anxiety is predicted. In this way, the vaccinated people with neuroticism and extroversion dimension had high corona anxiety, and we also saw a decrease in corona anxiety in these people by increasing the dimensions of flexibility and agreeableness. The direct relationship between the neurotic personality dimension and corona anxiety can be explained in such a way that neurotic people have the characteristics of experiencing anxiety, tension, narcissism, hostility, impulsivity, low self-esteem, irrational thinking, depression and low self-esteem. These people have negative emotions such as anger, fear, sadness, anxiety, excitement, guilt, and confusion. Therefore, the presence of these negative feelings causes incompatibility and increased anxiety of corona in a person. People with this personality dimension do not have emotional stability and peace. It is quite clear that a person who does not have emotional stability experiences anxiety and stress when faced with problems (Ramstedt et al., 2021). On the other hand, people with neurotic personality traits tend to process and recall negative life memories more than others and are more likely to be exposed to anxiety. By biasing towards negative things in the face of the news related to the spread of Corona in the world and the statistics and figures related to the deaths caused by this disease, they experience more anxiety about their future and those around them (Ghorbani et al., 2021).

In connection with the positive relationship between the personality trait of extroversion and corona anxiety, it can be mentioned that certain consequences and events are the result of people's own behavior and actions, and their health is directly determined by their own behavior and actions. In dealing with anxiety-provoking events like Corona, people use effective coping strategies, they consider themselves the possible cause of virus transmission; As a result, they use masks, do not kiss and avoid unnecessary presence in gatherings. However, all these characteristics are contradictory to the personality trait of extroversion, and if these issues are observed, they will endure a lot of anxiety (Pouyan Fard et al., 2020). People with extroverted personality traits communicate their health and illness to others or fate, do not have a sense of responsibility for their health or illness, do not follow health guidelines, often base their behavior on their wishes, needs, perception and interpretation. others determine and use emotional and ineffective methods to deal with anxiety; Therefore, they show a weaker performance in dealing with the disease and the anxiety of the disease increases in them (Pouyan Fard et al., 2020).

Also, to explain these results, it can be said that when people with a flexible personality dimension have imagination, rationality and curiosity and are willing to accept new ideas and unconventional values and are able to experience positive and negative emotions. They are always ready to accept moral and social opinions, respond to their values responsibly (Tashvighi et al., 2012). Therefore, these personality traits of flexibility and purposefulness in a person make a person not have special anxiety in times of dangers and diseases. A flexible person is ready to accept any changes in life and will not have any threatening stress and anxiety in this regard. Therefore, the amount of corona anxiety is low in people who have a flexible personality dimension (Tabebardar et al., 2021).

In the same way, with the increase of agreeableness, self-control, rationality, hard work, a person's confidence increases and helps him adapt; Therefore, a person can better adapt himself to the critical conditions of Corona and the duration of hospitalization is reduced. Therefore, it can be said that with the increase of agreeableness, the level of adaptation of a person increases and leads to a decrease in the anxiety of Corona in a person. In Ashvanden et al.'s (2020) research, higher agreeableness was associated with precautionary measures during the time of Corona; People with this personality trait try to fully comply with health instructions and deal with tension and anxiety with these necessary security measures and precautions (Ghorbani et al., 2021).

The next finding confirmed the second hypothesis of the research, which believes that corona anxiety is predicted based on self-incidence in vaccinated people. The findings showed that self-care has a positive and significant effect on corona anxiety. This finding is in line with the results of many previous researches: Simona et al. (2021);

Murphy et al. (2021); Akbas et al. (2021); Hesolas et al. (2021); Ozdin (2020); Jungman et al. (2020); Moradi and Alizadeh (2021); Hojjati and Darabi (2020); Yousefi Afrashte and Alizadeh (2020) and Mousavi et al. (2020). The mentioned studies also believe that the component of self-diagnosis can be a predictor of Corona anxiety.

Because anxiety and health concerns and self-morbidity occur when physical sensations and changes are perceptible. Therefore, corona anxiety may lead to misinterpretation of physical sensations (coronavirus-like symptoms, fever, cough, and muscle pain), and these misinterpretations lead to increased self-diagnosis (Murphy et al., 2021). Also, in the cognitive-behavioral models of self-diagnosis, it was assumed that during such epidemics, physical feelings or harmless symptoms are interpreted as threats and signs of a serious illness, which leads to increased anxiety and subsequently increased physical feelings. (Smundsen et al., 2010).

In explaining this finding, it can also be said that during the corona virus epidemic, the media plays an active role in informing the news and incidents caused by this epidemic. These notifications will lead to high physiological stimulation and, as a result, negative emotions of people, which leads to people not being successful in regulating their emotions and increases self-diagnosis. As a result, self-diagnosis is also associated with an increase in corona anxiety. Therefore, it is not far from the expectation that self-diagnosis predicts corona anxiety in vaccinated people. One of the most important limitations of the research is the lack of access to a wider community of people in other vaccination centers, and it seems that conducting other research on people who were present in other vaccination centers can complete and generalize the results of this research.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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