Chronic Diseases Journal

DOI: 10.22122/cdj.v10i4.692 Published by Vesnu Publications

Loneliness based on personality traits and cognitive emotion regulation with the mediating role of coronavirus anxiety

Marzieh Sadat Ebrahimi[1], Firoozeh Zanganeh-Motlagh[2], Zabih Pirani[3]

1 Department of Psychology, Arak Branch, Islamic Azad University, Arak, Iran
2 Department of Psychology and Counseling, Araka Branch, Islamic Azad University, Arak, Iran
3 Department of Psychology, Arak Branch, Islamic Azad University, Arak, Iran

Original Article

Abstract

BACKGROUND: Loneliness is an emotional state, in which a person experiences a very strong feeling of intimacy and isolation, and in the period of coronavirus outbreak, most people feel lonely; thus, it is important to identify the factors that affect the feeling of loneliness in this period. This study was conducted with the aim to develop a model of loneliness based on personality traits and cognitive emotion regulation with the mediating role of coronavirus anxiety.

METHODS: The present study was a descriptive-correlational study and the statistical population included all citizens of Qom province, Iran, in 2020. Thus, 400 people were selected through case-sampling as a research sample and were asked to complete the UCLA Loneliness Scale, NEO Five-Factor Inventory (NEO-FFI), Cognitive Emotion Regulation Questionnaire (CERQ), and Corona Disease Anxiety Scale (CDAS). Data were analyzed using Pearson correlation and regression methods. Moreover, Path analysis was used due to the existence of a mediating variable.

RESULTS: Personality traits, cognitive emotion regulation, and anxiety associated with Australia-virus account for 40% of the variance in feelings of loneliness.

CONCLUSION: These results suggest that patients with viral diseases are mediated in terms of personality traits, cognitive regulation, and loneliness.

KEYWORDS: Personality Traits; Emotional Regulation; Loneliness; Coronavirus Anxiety

Date of submission: 28 Feb. 2022, ***Date of acceptance:*** 12 Jul. 2023

Citation: Ebrahimi MS, Zanganeh-Motlagh F, Pirani Z. **Loneliness based on personality traits and cognitive emotion regulation with the mediating role of coronavirus anxiety.** Chron Dis J 2022; 10(4): 225-37.

Introduction

Since late December 2019, coronavirus pneumonia (Covid-19) has been transmitted through human-to-human transmission and is now affecting more than 200 countries worldwide.[1] Due to the high contagiousness of the virus, it spread rapidly throughout the world and infected almost every country in a short period of time (less than 4 months).[2]

This contagious disease has introduced unbreakable psychological pressure such as stress and anxiety on societies and has resulted in loneliness. As a result of the increase in the prevalence of this disease, the fear of the possibility of death due to viral infections has increased and has led to psychological stress.[3]

Coronaviruses are a large family of viruses that range from the common cold to more serious illnesses. In 2019, a new type of corona virus from the Severe Acute Respiratory Syndrome (SARS) family was detected, and the disease caused by it is called Covid-19.[4]

Corresponding Author:
Firoozeh Zanganeh-Motlagh; Department of Psychology and Counseling, Araka Branch, Islamic Azad University, Arak, Iran
Email: f-zanganeh@iau-arak.ac.ir

Corona has caused severe crises around the world in dimensions related to mental health,[5] depression,[6] anxiety,[7] and obsessive-compulsive disorders (OCD).[8] Moreover, psychological distress such as panic and fear,[9] and despair have been the most basic traumatic psychological reactions in most injured people and people at risk of disease outbreaks.[10] Strategic planning for disease control, such as quarantine, gradually alienates people, and if interpersonal communication is not established, depression and anxiety are more likely to occur, The person experiences other negative psychological reactions including adjustment disorder such as feeling lonely..[3] The feeling of loneliness takes away the feeling of pleasure and vitality from a person and puts more psychological pressure on the individual and causes physical and mental fatigue. Furthermore, it has been shown that people who feel lonely for a long time are more likely to experience more severe anxiety and depression.[11]

Numerous factors and characteristics are associated with feeling lonely. Of these factors, we can mention personality traits and cognitive regulation of emotion. Many theories have been proposed in relation to personality, and experts and researchers have pointed out various factors and traits. One of the most important achievements in this field is the five factor model of personality proposed by Costa and McCrae.[12,13] This model includes extraversion (including warmth, groupism, assertiveness, activity, and excitement), openness to experience (including imagination, aesthetics, emotions, actions, and beliefs and values), neuroticism (including anxiety, aggression, depression, shyness, arousal, and vulnerability), conscientiousness (including adequacy, discipline, striving for success, self-control, and caution in decision-making), and agreeableness (including trust, assertiveness, altruism, companionship, humility, and compassion).[14] Many researches have reported a significant relationship between personality dimensions and loneliness.[15-17] Another variable that predicts loneliness is cognitive emotion regulation. Cognitive emotion regulation refers to how a person processes cognition in the face of traumatic and stressful events.[18]

Cognitive emotion regulation can be defined as the methodology of managing stimulated emotional information.[19] People with cognitive emotion regulation skills can reduce or control negative emotions well, and there is a significant relationship between emotion regulation and reduced self-harm and emotional problems such as depressive symptoms, anxiety, and stress.[20] Previous researches have also investigated the relationship between the cognitive regulation of emotion and loneliness,[21-24] and have shown a relationship between these variables. It should be noted, however, that the relationship of personality traits and cognitive emotion regulation with feelings of loneliness and death anxiety is not a simple one. Rather, each of these variables may be affected by various factors that affect the relationship between these variables.[25] For example, illness anxiety may indirectly make this relationship meaningful.[25]

Studies have shown that personality traits are associated with health behaviors. For example, people with a high score on neuroticism are often concerned about their health.[26-29] Moreover, on the one hand, increased anxiety, including coronavirus anxiety,[22-30] is associated with feelings of loneliness, and on the other hand, following negative emotion regulation strategies and increasing anxiety,[31,32] including anxiety caused by the coronavirus. Researchers in examining the effects of respiratory infectious diseases and quarantine in the individual dimension (psychological and emotional problems, and distress)[33] found that one of the factors was the fear of spreading the disease to themselves and their family and friends[34] and

the anxiety of getting infected,[35] in addition to suffering from the feeling of loneliness in quarantine and reducing physical activities and being limited.[36]

Given the high prevalence of coronavirus, and unknown nature of the coronavirus disease, and in order to reduce the prevalence of coronavirus and its irreversible consequences, one must first identify the factors associated with it and the contribution of each one and then took advantage of them. Given the rapid increase in the prevalence of this disease and the lack of research in this field, it seems that research is needed to help to identify the relation of this disease and anxiety, and identify factors related to illness anxiety and strategies to deal with anxiety. Accordingly, the five factors of personality and cognitive emotion regulation may be directly related to feelings of loneliness, or indirectly related to coronavirus anxiety or feelings of loneliness in people. By summarizing the literature and background of various researches in this field, a theoretical model is proposed which may be helpful. The present study was conducted to develop a model of loneliness based on personality traits and cognitive emotion regulation with a mediating role of coronavirus anxiety.

Methods

The research design was structural equation model and correlation method. The statistical population of the study consisted of all citizens of Qom province, Iran (1,292,283 persons).

In this study, 400 people were selected using available sampling method and completed the questionnaires online. According to the objectives of the study, the study inclusion criterion was lack of any acute psychiatric illness. The exclusion criteria included incomplete questionnaires, use of psychiatric drugs, and reluctance to participate in the study.

Sample size was determined according to the recommendation of Klein,[37] who suggested that 2.5 to 5 people are sufficient for each subject, but the minimum sample size of 200 people is defensible. In this research, based on the number of items of the questionnaires (15 items regarding death anxiety, 20 items regarding feeling alone, 60 items regarding the five-factor traits of personality, 18 items regarding cognitive-emotional regulation, and 18 items regarding coronavirus anxiety), at least 327 citizens of Qom should have been selected. However, considering the outlier questionnaires, in this research, 400 people responded to the aforementioned questionnaires online (through provincial groups and channels), 78 of these questionnaires were eliminated due to lack of correct answers, and 322 questionnaires was analyzed. It should be mentioned that the questionnaires were presented and received by the researcher, and that due to the spread of the Corona virus, the questionnaires were made available to the citizens of Qom online with and explanation of the purpose of the research using the press line tool.

The time efficiency of the research was from the beginning of October 2021 to almost the middle of February 2022.

Ethical considerations: As the principles of research ethics were taken into consideration in this study, it was approved by the ethical committee of Islamic Azad University of Arak Branch, Iran, with the code IR.IAU.ARAK.REC.1400.025.

The study tools consisted of the UCLA Loneliness Scale, NEO Five-Factor Inventory (NEO-FFI), Cognitive Emotion Regulation Questionnaire (CERQ), and Corona Disease Anxiety Scale (CDAS).

UCLA Loneliness Scale: The Loneliness Scale was first developed by Russell and consists of 20 items (10 negative sentences and 10 positive sentences).[37] The items of this questionnaire are scored on a 4-point Likert scale ranging from 1 to 4 [never (1), rarely (2), sometimes (3),

and always (4)]. Nevertheless, questions 1, 5, 6, 9, 10, 15, 16, 19, and 20 are reverse-scored items. The total score of the scale ranges between 20 (minimum) and 80 (maximum). Therefore, the average score of this scale is 50. A score higher than the average indicates a higher severity of loneliness.[38] The final version of this questionnaire was administered to the 4 groups of students, nurses, teachers, and the elderly through various methods such as self-report and interview, and the alpha range was obtained to be 0.89-0.94.[39] In Iran, Sudani et al.[40] examined the psychometric properties of this questionnaire and its reliability using Cronbach's alpha method (α = 0.81).

NEO Five-Factor Inventory: The NEO-FFI was first developed by Costa and McCrae in 1983. The NEO-FFI short form contains 60 items. In this inventory, the 5 traits of neuroticism (N), extroversion (E), openness to experience (O), agreeableness (A), and conscientiousness (C) are measured. The items are scored on a 5-point Likert scale ranging from 4 to 0 [I completely disagree (4), I disagree (3), indifferent (2), I agree (1), and I completely agree (0)].[28] However, items 1, 46, 12, 27, 42, 57, 3, 8, 18, 23, 33, 38, 48, 9, 14, 24, 29, 39, 44, 54, 15, 30, 45, and 55 are reverse-scored items.[41] Costa and McCrae distributed the NEO-FFI among 208 American students at 3-month intervals and reported the validity coefficient to be 0.83 for neuroticism, 0.75 for extroversion, 0.8 for openness to experience, 0.79 for agreeableness, and 0.79 for conscientiousness.[12] They reported the construct validity of this instrument to be 0.84 in 1999.[12]

In the study by Garousi Farshi,[42] the internal consistency coefficient of the whole inventory was reported to be about 0.70 and the Cronbach's alpha coefficients of the subscales of neuroticism, extraversion, agreeableness, conscientiousness, and openness were reported to be equal to 0.86, 0.73, 0.80, 0.87, and 0.45, respectively. Furthermore, the NEO-FFI was translated and prepared for implementation among students. Simultaneous validity between the short and long forms of the NEO-FFI for the 5 factors ranged between 0.41 and 0.71, the validity of the subscales ranged between 0.65 and 0.86, and the Cronbach's alpha of the subscales ranged between 0.54 and 0.79.[43,44]

Cognitive Emotion Regulation Questionnaire: The CERQ-short is one of the most valid assessment tools for measuring various cognitive strategies and was developed by Garnefski et al.[45]

The CERQ-short consists of 18 items. This 18-item questionnaire is scored on a 5-point Likert scale ranging from never to forever. This questionnaire asks the individual to specify his/her respond to the threatening experiences and stressful life events they have recently experienced by answering to 18 questions that evaluate 9 cognitive strategies for controlling and regulating emotion. The cognitive strategies include self-blaming, acceptance, rumination, and positive re-focus, re-focusing on planning, positive re-evaluation, perspective, catastrophizing, and blaming others.[46]

In the study by Garnefski and Kraaij,[47] the reliability and internal consistency of most scales were confirmed with a Cronbach's alpha coefficients of 0.80. The CERQ has been standardized in the Iranian culture by Hassani.[48] In the research by Hassani, the reliability of the CERQ has been reported based on internal consistency methods (with Cronbach's alpha range of 0.76 to 0.92) and test-retest (with correlation range of 0.51 to 0.77), and its validity through component analysis of the main correlation between the subscales (with a correlation range of 0.32 to 0.67) and optimal criterion validity have been reported using Varimax rotation.[48]

Corona Disease Anxiety Scale: The CDAS was first developed by Alipour et al.[49] The final

version of this tool has 18 items and 2 components (factors). The items are scored on a 4-point Likert scale ranging from 0 to 3 (never = 0, sometimes = 1, most of the time = 2, and always = 3). Therefore, the total score of the scale ranges between 0 and 54. High scores in this questionnaire indicate a high level of anxiety in individuals.

Items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical symptoms. The reliability of the first factor (α = 0.879), the second factor (α = 0.168), and the whole questionnaire (α = 0.919) was obtained using Cronbach's alpha method. Furthermore, the value of Guttman's lambda-2 (λ-2) was obtained for the first factor (λ-2 = 0.882), the second factor (λ-2 = 0.864), and the whole questionnaire (λ-2 = 0.922). To evaluate the correlation-dependent validity of this questionnaire, the correlation of this tool with the 28-GHQ questionnaire was evaluated. The results showed that the CDAS with a total score of 28-GHQ questionnaire and the components of anxiety, physical symptoms, social dysfunction, and depression is equal to 0.483, 0.507, 0.418, 0.333, and 0.269, respectively, and all these coefficients were significant at the level of 0.01.[49]

Data analysis of the present study was performed at two levels of descriptive and inferential statistics. At the level of descriptive statistics, data were analyzed using statistical indicators such as frequency, and mean and standard deviation. The mean index was used as the center-orientation index and the standard deviation index was used as the index for measuring the dispersion or deviation of data from the center. The normality of the distribution of variables was evaluated using skew and elongation statistics. According to most sources, the distribution of scores in the range of 2 to -2 and elongation in the range of 3 to -3 can be assumed to be normal. At the level of inferential statistics in proportion to the level of data measurement and the assumptions of statistical tests, the relationship between variables was tested using the Pearson correlation test and the research model was tested through the path analysis technique.

The range of the correlation coefficient, regardless of the positive and negative sign, is 0-1, and values closer to 1 indicate that the relationship is stronger. In general, coefficients less than 0.40 indicate a relationship with low intensity, 0.4 to 0.6 moderate intensity, and greater than 0.60 indicate a strong relationship. The correlation coefficient may be negative, which indicates that the relationship is negative or inverse. The role of mediation was investigated using bootstrapping or retesting in Emus software; the mediation effect was significantly tested based on the standard error of Bootstrapping. The maximum alpha error level for testing the hypotheses was set at 0.05 ($P < 0.05$). Data analysis was performed using SPSS software (version 26; IBM Corp, Armonk, NY, USA) and AMOS statistical software (version 24; IBM Corp, Armonk, NY, USA). This study was approved by the Ethical committee of Arak Branch, Islamic Azad University, Arak, Iran under the ethical code of (IR.IAU.ARAK.REC.1400.025)

Results

The study of demographic characteristics showed that 72.7% of respondents were women and 27.3% were men. Most respondents (70.5%) were married. In addition, 14.3% of respondents were between 18 and 25 years of age, 8.1% were between 26 and 30 years of age, 14.9% were between 31 and 35 years of age, and most of the respondents (i.e., 62.7%) were between 36 and 60 years of age. In terms of education, 31.4% had a master's degree, 16.1% had a master's degree, 27% had a bachelor's degree, and 25.5% had a master's degree or a doctorate.

The results presented in table 1 show that the average of the loneliness sensation in the

sample group is 60.91, which is higher than the average score of the tool (range: 20 to 80; average score: 50). Among the personality traits, the highest mean (32.08) was that of conscientiousness and the lowest mean (22.59) was that of neuroticism. In cognitive-emotion regulation, the mean of adaptive strategies (33.02) was higher than the mean of maladaptive strategies (22.21). Moreover, the mean coronavirus anxiety in the sample group was 43.09, which is much higher than the mean score of the tool (range: 0 to 54; mean score: 27).

The results presented in table 1 show that none of the research variables have a serious deviation from the normal distribution and the range of the values of skewness and elongation are acceptable. Based on most sources, the skewness of the distribution of scores within the range of 2 to -2 and elongation within the range of 3 to -3 can be assumed to be normal. The data distribution of none of the research variables has exceeded these domains, so the data distribution can be assumed to be normal according to Howitt and Kramer.[50]

Table 2 shows the results of the Pearson correlation test with the aim of investigating the relationship between variables.

The results showed that the dependent variable of loneliness was related to all variables of the study ($p < 0.05$). Loneliness had a negative relationship with neurosis, maladaptive strategies, and coronavirus anxiety, and a positive relationship with extroversion, openness, agreeableness, conscientiousness, and adaptive strategies. Loneliness has the strongest correlation with neuroticism with a coefficient of 0.52 and extraversion with a coefficient of 0.44. The results showed that the mediating variable of corona anxiety was related to all personality traits except agreeableness and to both dimensions of adaptive and maladaptive strategies ($P < 0.05$). Corona anxiety had a positive relationship with neuroticism, and a negative relationship with the other personality traits. Examination of the intensity of the correlation between independent variables shows that the intensity of the correlation between variables is less than 0.70, and as a result, the default of non-multiple alignment, which is one of the assumptions of the path analysis test, is established in the data.

The conceptual model of the research was tested using the path analysis technique in Amos software. Figure 1 shows the research model in the form of standard coefficients. It shows the modified model in the form of standardized coefficients. All relationships in the model are verified. The results show that the strongest relationships in the model are related to the effect of neuroticism on loneliness with a standard coefficient of 0.37 and the effect of neuroticism on corona anxiety with a coefficient of 0.25.

Table 1. Summary of descriptive findings of loneliness, personality traits, cognitive emotion regulation, and anxiety in coronavirus

Variables	Mean	SD	Min	Max	Skewness	Elongation
Feeling of loneliness	60.91	9.57	38	80	-0.190	-0.747
Neuroticism	22.59	6.23	11	38	0.197	-0.715
Extroversion	29.54	6.07	10	46	-0.242	-0.104
Openness to experience	26.57	5.16	12	40	0.131	-0.362
Agreeableness	30.63	5.23	14	44	-0.764	0.634
Conscientiousness	32.08	5.91	14	48	-0.885	0.011
Adaptive strategies	33.02	7.84	15	50	-0.012	-0.669
Maladaptive strategies	22.21	5.32	11	36	0.214	-0.658
Coronavirus anxiety	43.09	9.92	9	54	-1.23	0.841

SD: Standard deviation

Table 2. Correlation matrix between research variables

Variables	Feeling of loneliness	Neuroticism	Extroversion	Openness to experience	Agreeableness	Conscientiousness	Adaptive strategies	Maladaptive strategies	Coronavirus anxiety
Feeling of loneliness									
Neuroticism	0.52**								
Extroversion	-0.44**	-0.37**							
Openness to experience	-0.28**	-0.18**	0.19**						
Agreeableness	-0.39**	-0.20**	0.36**	0.20**					
Conscientiousness	-0.34**	-0.12*	0.25**	0.12*	0.26**				
Adaptive strategies	-0.41**	-0.17**	0.09	0.08	0.24**	0.20**			
Maladaptive strategies	0.37**	0.06	-0.19**	-0.17**	-0.17**	-0.27**	-0.45**		
Coronavirus anxiety	0.40**	0.27**	-0.12*	-0.14*	-0.09	-0.14*	-0.22**	0.18**	

SD: Standard deviation

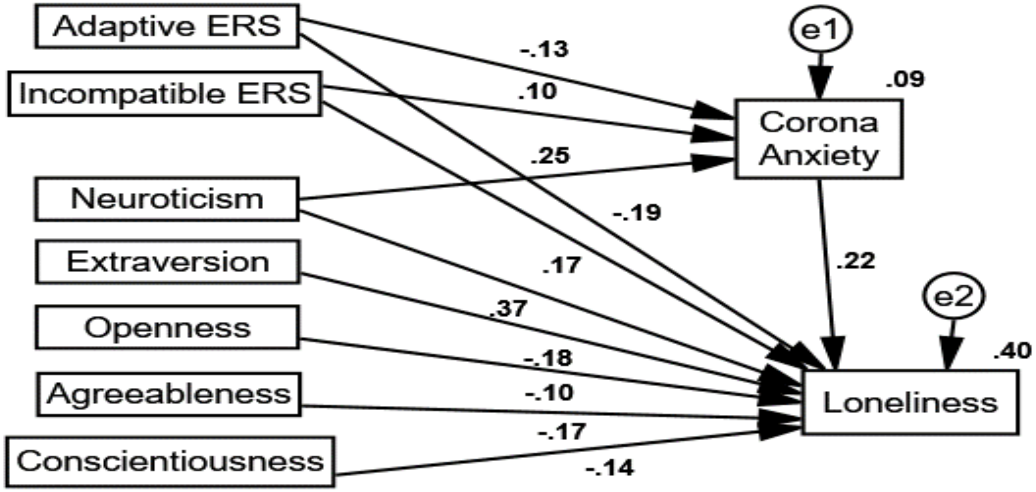

Figure 1. Modified model in the standard path coefficient model

Table 3. Research model fit indices

Fit index	RMSEA	GFI	CFI	NFI	IFI	PGFI	AGFI	The ratio of chi-square to df
Criteria	< 0.08	> 0.94	> 0.90	> 0.90	> 0.90	> 0.70	> 0.70	In the range of 1 to 5
Result	0.069	0.91	0.89	0.91	0.92	0.73	0.76	3.54

RMSEA: Root Mean Square Error of Approximation; GFI: Goodness of Fit Index; CFI: Comparative Fit Index; NFI: Normed Fit Index; IFI: Incremental Fit Index; PGFI: Parsimony Goodness of Fit Index; AGFI: Adjusted Goodness of Fit Index; df: Degree of freedom

Table 3 shows the model fit indices. In the initial experimental model, the number of relationships between variables was high and the model was relatively complex, which resulted in a number of non-significant relationships, and the fit of the model was not acceptable. As a result, changes were made in the initial experimental model and the non-significant relationships of the model were eliminated, which improved the model fit. In this section, the modified model is reported and reviewed. In general, by evaluating all the fit indices, it can be inferred that the fit indices obtained show the proper fit of the data with the conceptual model and the research model has an acceptable fit. Moreover, 7 indicators out of 8 indicators have an acceptable and appropriate value and an average value index have been obtained; thus, it can be concluded that the model has a good fit and the suitability of the model is confirmed.

The structural model test results are presented in table 4. The results of the structural equation modeling test showed that all relations of the correction model are significant and all 11 relations are confirmed ($P < 0.05$).

The coefficient of loneliness obtained was 0.40, which is a relatively good value and showed that the variables of personality traits, emotion regulation strategies, and corona anxiety could explain 40% of the variance in loneliness.

The findings confirmed the effect of all five personality traits, including neuroticism, extroversion, openness, agreeableness, and conscientiousness, as well as the effect of adaptive and maladaptive strategies and corona anxiety on loneliness ($P < 0.05$).

The results only confirmed the effect of neuroticism among the personality traits, and adaptive strategies among the emotion regulation strategies on corona anxiety ($P < 0.05$).

Therefore, the effect of the four traits of extroversion, openness, agreeableness, and conscientiousness on corona anxiety was rejected; accordingly, these relationships were removed from the model ($P < 0.05$). Moreover, the mediating role of corona anxiety in the relationship between the mentioned variables and the dependent variables was rejected.

Table 4. The results of the research model test (coefficients table)

Effect type	Standard coefficient	Non-standard coefficient	SE	t value	P	Result
Neuroticism ➔ Feeling of loneliness	0.37	0.49	0.059	8.32	< 0.001	Confirmed
Extroversion ➔ Feeling of loneliness	-0.18	-0.25	0.059	4.17	< 0.001	Confirmed
Openness ➔ Feeling of loneliness	-0.10	-0.15	0.069	2.20	0.028	Confirmed
Agreeableness ➔ Feeling of loneliness	-0.17	-0.26	0.068	3.83	< 0.001	Confirmed
Conscientiousness ➔ Feeling of loneliness	-0.14	-0.20	0.060	3.29	0.001	Confirmed
Neuroticism ➔ Corona Anxiety	0.25	0.39	0.084	4.66	< 0.001	Confirmed
Adaptive Strategies ➔ Feeling of loneliness	-0.19	-0.21	0.046	4.46	< 0.001	Confirmed
Maladaptive Strategies ➔ Feeling of loneliness	0.17	0.26	0.067	3.84	< 0.001	Confirmed
Adaptive Strategies ➔ Corona Anxiety	-0.13	-0.17	0.067	2.51	0.012	Confirmed
Maladaptive Strategies ➔ Corona Anxiety	-0.10	-0.19	0.950	1.99	0.049	Confirmed
Corona Anxiety ➔ Feeling of loneliness	0.22	0.18	0.038	4.76	< 0.001	Confirmed

SE: Standard error

Table 5. The results of the research model test (coefficients table)

Relation	Direct effect	Significance level	Result
Neuroticism➔corona anxiety➔ feeling of loneliness	0.053	< 0.05	Confirmed
Adaptive strategies➔corona anxiety➔ feeling of loneliness	0.031	< 0.05	Confirmed

Table 5 shows the results of the mediation test. The significance of the mediating role was investigated using the bootstrapping method in Amos software. In table 5, only significant mediation relationships are reported (P < 0.05).

The results of the mediation test showed that corona anxiety has a mediating role in the relationship between neuroticism and loneliness, and the relationship between adaptive strategies and loneliness (P < 0.05).

Discussion

The aim of this study was to develop a model of loneliness based on personality traits and cognitive emotion regulation with the mediating role of coronavirus anxiety.

The results showed that the loneliness model based on personality traits and cognitive emotion regulation fit with emphasis on the mediating role of coronavirus anxiety. The results showed that corona anxiety has a mediating role in the relationship between neuroticism and feelings of loneliness, and in the relationship between adaptive strategies and feelings of loneliness. Regarding the correlation and fit between the variables, personality factors are predictors of anxiety and health.

Anxiety associated with disease has a positive relationship with the personality traits of neuroticism and introversion in a positive way, and has a negative relationship with the traits of extraversion, openness to experience, responsibility, and conscientiousness. In explaining these data, it can be inferred that neuroticism is a weakness of mental energy that is the inability to recognize the behaviors that affect the outside world. Most psychologists believe that neuroticism requires a kind of inherited preparation to direct all of one's behaviors towards this preparation.[51] In other words, because individuals with neuroticism are genetically less prepared for emotional stability and have a greater tendency to experience anxiety and stress, whenever any environmental interaction disrupts personality and balance, the person experiences stress and tension.

Be. Gubler et al. conducted a study on 466 patients and showed that neuroticism is one of the fundamental personality traits with negative emotions such as anxiety (anxiety disorder).[52] Moreover, in a study by Wong et al. in Hong Kong, 583 patients were diagnosed with fear, anxiety, despair, and loneliness during the Covid-19 outbreak.[22]

In addition, introversion is an attitude that manifests itself in orientation in life through mental content. Introverts have psychologically faster brain activity than normal individuals, which means that they need less than normal motivation power. In other words, they prefer peace and quiet. A study by Qian and Yahara in China on 1856 individuals reported a negative association between anxiety, illness, and the factors of being pleasant and conscientious.[51] It can be acknowledged that being pleasant means that the person has an appropriate and adaptive response to stressful situations such as the critical condition of an epidemic.[51]

Studies show that people who score low on this trait have greater instability in emotions and higher vulnerability to disorders such as anxiety, loneliness, and feelings of loneliness. Evidently, low conscience and responsibility in individuals also leads to reduced organization, deterrent behaviors, reduced rationalism and reliability, and the responsibility of affairs should be on others. With low self-control and low self-esteem and self-esteem, these

people constantly feel anxious in different situations (disease conditions) and show weak inhibition in expressing emotions and become highly anxious.

Qian and Yahara found that increase in the score of conscientiousness, openness, experience, agreement, and extraversion causes a decrease in the level of anxiety because these people have higher self-confidence, are more optimistic about others and the environment, and considered magnanimity and, altruism to be positive aspects, and other aspects to be trustworthy, and have a high level of health, thus resulting in low anxiety and depression scores.[51] Furthermore, the study by Lazaro-Perez et al. on 2079 individuals showed that the higher a person scores on neuroticism, the higher their level of anxiety is, thus resulting in increased coronavirus anxiety.[53] As a result, the rise in anxiety caused by the corona virus leads to psychological damage, including feelings of loneliness.[53]

In addition, in relation to the fit between personality traits and loneliness with emphasis on the mediating role of coronavirus anxiety the following can be said.

The study by Domaradzka and Fajkowska on 1632 participants showed that positive cognitive regulation strategies had a positive relationship with anxiety and depression, and negative cognitive regulation strategies had a positive relationship with anxiety and depression.[54] Positive strategies, cognitive regulation, and emotion had a negative significant relationship with anxiety, and negative strategies, cognitive regulation, and emotion had a positive and significant relationship with anxiety.[54]

It can be said that positive strategies, which are compromised of strategies to deal with stressful events, improve self-esteem, social competencies, etc. In contrast, negative strategies, which are maladaptive strategies for coping with stressful events, cause stress, depression, and other psychological damage. Another important point is that the use of negative strategies is associated with a lack of suitable management of emotions in the face of everyday life events and causes symptoms or disturbances of the introversion disorders such as depression and anxiety.[19,55]

In other words, bias in the interpretation of social environment events leads to incorrect hypotheses about oneself and the social environment, which leads to a negative evaluation of social situations. Therefore, as Kramer et al. found in their study on 80 patients, it can be expected that with increasing positive cognitive emotional strategies and decreasing negative cognitive emotional strategies, the level of corona anxiety will decrease.[55]

A study by Kang et al. on the mental health of medical staff in Wuhan, China, dealing with coronavirus revealed that regular and active cognitive assessment and regulation of emotion could relieve stress.[56] This, in turn, enables people to reduce the anxiety associated with coronavirus, and thus, maintain mental health in the long run, thereby reducing feelings of loneliness.[56]

In general, psychopathologists argue that poor performance in social interactions and feelings of loneliness are also the result of inadequate regulation of emotional responses, in which anxiety plays a mediating role. Due to the difficulty in emotional regulation in a number of emotional disorders such as anxiety disorders, including coronavirus anxiety and anxiety due to constraints and quarantine, often, long-term quarantine tolerance is an unpleasant and stressful experience for different people and leads to feelings of loneliness.[50,52,53]

It should be mentioned that based on the model, the effect of some variables is stronger and the effect of some variables is relatively neutralized. This hypothesis also indicates that the effect of neurotic personality trait and

adaptive strategy due to corona anxiety on the feeling of loneliness has a stronger effect and has neutralized the effect of other personality traits and maladaptive strategies.

The most important limitations of the present study were the use of available non-probability sampling method and online distribution of questionnaires due to the difficulty in collecting data in the corona pandemic. Therefore, if possible, it is recommended that possible sampling methods and interviews be used to collect data, especially in the field of corona anxiety.

The present study could be conducted on citizens of other cities and its results could be compared with the results of this study to discuss the results with more accuracy and confidence. Moreover, considering the existence of gender differences in most psychological characteristics, it is suggested that this research be conducted separately in gender groups in order to design different programs to reduce anxiety and loneliness if the results are different for each sex.

Conclusion

What plays a major role in predicting and explaining corona anxiety is primarily the persistent, abnormal, and morbid fear of the death of oneself and others. According to the results, health professionals and therapists, to reduce corona anxiety, should first reduce death anxiety. Finally, it can be said that people with unhealthy personalities have more problems than healthy people in emotion regulation processes.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The authors of this article would like to thank all the participants who took the time to help carry out this research.

Financials support and sponsorship

This article was part of the PhD thesis of the first author in the field of general psychology in the Department of Psychology, Faculty of Psychology and Educational Sciences, Islamic Azad University, Arak Branch.

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