Journal of Fundamentals of Mental Health

Mashhad University of Medical Sciences

Psychiatry and Behavioral Sciences Research Center

Original Article

Investigation of the corona anxiety in teenagers of families affected by the COVID-19 disease: The moderating role of quality of life in relationship to psychological well-being

***Sadegh Hekmatiyan Fard**

[1]*Ph.D. student, Department of Psychology, Persian Gulf University, Bushehr, Iran.*

Abstract

Introduction: The present study aimed to investigate the anxiety of corona in teenagers of families affected by COVID-19 disease with the moderating role of quality of life about psychological well-being.

Materials and Methods: The statistical population consisted of all adolescents who have had one or more COVID-19 patient family members in Bushehr city-Iran during 2019 to 2022. Among whom 300 eligible individuals (157 boys and 143 girls) were selected using the convenience sampling method. The data were collected using the COVID-19 Anxiety Scale of Alipour et al., Ryff's Psychological Well-being Scale, and the World Health Organization Quality of Life Questionnaire (WHOQOL). The data were analyzed in SPSS 26 through the Pearson correlation coefficient test and hierarchical regression analysis.

Results: A significant relationship was found between COVID-19 anxiety and psychological well-being ($P< 0.001$). In addition, quality of life moderated the relationship between COVID-19 anxiety and psychological well-being.

Conclusion: Given the psychological effects of COVID-19 anxiety on adolescents, relevant authorities are recommended to develop appropriate training programs to help all members of society especially adolescents, control their anxiety.

Keywords: Adolescents, COVID-19 anxiety, Psychological well-being, Quality of life

Please cite this paper as:
Hekmatiyan Fard S. Investigation of the corona anxiety in teenagers of families affected by the COVID-19 disease: The moderating role of quality of life in relationship to psychological well-being. Journal of Fundamentals of Mental Health 2023 Jul-Aug; 25(4): 279-285.

Introduction

Adolescence is a transitional period in life associated with profound changes in the body and mind, as well as in visualization and imagination abilities (1). Individuals aged 10-19 years are considered adolescents (2). Due to the high sensitivity of adolescents to psychological and social developments, they are highly susceptible to mental disorders. Adolescents have a higher level of interaction with peers and the social world than with their family members. They also form more complex relationships with peers than younger individuals, such as infants and children. Any separation from peer relationships (e.g., rejection, bullying, and loneliness) is associated with developing mental disorders such as depression, anger, fear, stress, and anxiety (3). During the COVID-19 pandemic, most adolescents were required to adhere to physical

***Corresponding Author:**
Department of Psychology, Persian Gulf University, Bushehr, Iran.
sadegh.hekmatiyan@gmail.com
Received: Mar. 08, 2022
Accepted: May. 29, 2023

distancing or quarantine protocols; however, their psychological state may vary depending on their motivation to observe these protocols (4). The COVID-19 pandemic, declared by World Health Organization as a Public Health Emergency of International Concern (PHEIC). It has received global attention due to its rapid transmission and high pathogenicity. Therefore, this extremely stressful event may impose an enormous psychological and emotional burden on the general population. It is reasonable for people to feel stressed and anxious when they show high resilience during a crisis. In addition, when faced with many pandemic-induced stressors, people must rely on each other for communication and coping strategies to reduce the magnitude of the public health crisis (5). Therefore, understanding individual mental health outcomes and relevant protective factors (e.g., quality of life) can help specialists offer targeted interventions for different individuals.

Wang et al. observed that Chinese people experienced moderate to severe levels of anxiety, depression, and stress during the COVID-19 pandemic—however, using protective strategies such as masks reduced levels of these disorders and symptoms (6). In addition, Huang et al. investigated the prevalence of mental health problems among frontline clinical healthcare workers in COVID-19 hot spots. They observed extremely high levels of anxiety and stress among medical staff (7). During the pandemic, people fear being infected and prefer to stay quarantined; hence, mental health disorders are expected to increase during this period (4,8-11). Brooks et al. stated that people in quarantine (isolation) may suffer from depression, stress, anxiety, gloomy mood, insomnia, post-traumatic stress disorder (PTSD), anger, and emotional exhaustion (12). Ivchenko et al. found that the general Italian population has suffered from psychological problems (including boredom, a sense of immobility, and anxiety) during the quarantine/isolation period (13).

In another research, Jung and Jun found that COVID-19 patients or suspected cases who have been put in quarantine/experienced isolation may suffer from various degrees of depression, PTSD, acute stress disorder (ASD), anger, insomnia, irritability, and emotional exhaustion (14). Therefore, psychological support, effective psychological interventions, and coherent social support systems can reduce the mental problems of quarantined/isolated people (15,16).

Quality of life is important to well-being and happiness (17). Although there is no consensus on the definition of quality of life (18), it can be defined as a multidimensional subjective construct that encompasses a person's overall physical (e.g., physical pain), psychological (e.g., body image), and social (e.g., relationships with others) well-being (19). In addition, quality of life refers to general happiness and satisfaction (20). Gas et al. found that high levels of anxiety and depression, poor sleep quality, and disturbed life are very common during the COVID-19 pandemic (21). Increased anxiety adversely affects the quality of life of people (22). Evidence suggests that COVID-19 anxiety predisposes people to depression, Generalized Anxiety Disorder (GAD), and death anxiety (23).

According to the study by Zomalheto et al. the COVID-19 pandemic has negatively influenced the quality of life of rheumatoid arthritis patients (24). Schiavi et al. concluded that the COVID-19 pandemic has adversely affected the sexual function and quality of life of Italian women of reproductive age (25). Ping et al. used the EuroQol (EQ-5D) to evaluate the health-related quality of life of people in China during the COVID-19 epidemic. Pain/discomfort and anxiety/depression were the most common health problems. In addition, the elderly, chronic patients, those with low income, and highly anxious individuals were more likely to suffer from pain/ discomfort and anxiety/depression (26).

Healthcare professionals argue that the current epidemic is not only a physiological problem but also affects people's psychological well-being and can cause various mental disorders. Although WHO has published some recommendations on personal hygiene since the outbreak of the epidemic, it has also tried to raise awareness among the public about the negative mental health effects of COVID-19 (27). A review of the research literature on the causes of anxiety and the effects of COVID-19 anxiety on adolescents and adults indicates that quality of life may moderate the relationship between COVID-19 anxiety and psychological well-being in adolescents. Therefore, this study aimed to investigate the anxiety of Corona in teenagers of families affected by the disease of COVID-19 and the moderating role of quality of life concerning mental well-being.

Materials and Methods

The study population of this descriptive-correlational study consisted of all adolescents in the 13-15 years-old age group who have had one or more COVID-19 patient family member/members from 2019 to 2022 and had referred to Mehr Pathobiology Laboratory of Bushehr city-Iran. Since the exact number of these individuals was unknown, the convenience sampling method was used to select the sample. Over three months, a total of 754 COVID-19 Anxiety Scales were given to eligible adolescents, which is done online due to the special conditions governing the country. Moreover, those with anxiety scores >10 were selected as the sample. The inclusion criteria included the age group between 13 and 15 years old, having one or more COVID-19 patient family member/members from 2019 to 2022, willingness to participate, not being under psychological or psychiatric treatments, and having full consent. The exclusion criteria included incomplete questionnaires, and unwillingness to continue participating in the meetings.

Research instruments

A) Corona Disease Anxiety Scale (CDAS): CDAS is an 18-item tool that measures correlated anxiety in two dimensions, psychological and physical symptoms, and the items are answered on a Likert scale from zero to 3. Each subject receives a score from 0 to 54. Alipour et al. reported the validity and reliability of this scale for the whole questionnaire equal to 0.919. The reliability of this scale was reported using Cronbach's alpha method for the first factor equal to 0.879, the second factor 0.861, and the total questionnaire 0.919 (28).

B) Psychological Well-Being Scale: This scale was developed by Carol D. Ryff. The questionnaire used in the present study has 24 items and assesses six facets of well-being, including purpose in life, environmental mastery, positive relationships, personal growth, autonomy, and self-acceptance. The items are scored on a 7-point Likert style (1= strongly disagree, 2= disagree, 3= slightly disagree, 4=neither agree nor disagree, 5= slightly agree, 6= agree, 7= strongly agree). The reliability coefficients were obtained for purpose in life, environmental mastery, positive relationships, personal growth, autonomy, and self-acceptance 0.79, 0.81, 0.82, 0.83, 0.82, and 0.85 by coefficient, respectively (29). In the current research, the reliability coefficients for purpose in life, environmental mastery, positive relationships, personal growth, autonomy, and self-acceptance are 0.83, 0.73, 0.75, 0.81, 0.76, and 0.77, respectively. The compiler reported the content validity of the questionnaire as 0.78 and the reliability of the components and the total score with Cronbach's alpha method between 0.69 and 0.83 (29). This questionnaire was standardized in Iran by Khanjani et al. They reported the concurrent validity of the questionnaire with the Oxford Happiness Questionnaire as 0.55. Also, they calculated the reliability of this questionnaire using Cronbach's alpha method for six components of self-acceptance, environmental mastery, positive relationship with others, knowing the purpose in life, personal growth, and independence, equal to 0.51, 0.76, 0.75, and 52. 0, 0.73, 0.72, respectively, and reported 0.71 for the total scale (30).

C) WHO Life Quality Scale Short Form (WHOQOL-BREF): This is the short form of World Health Organization Quality of Life Assessment (WHOQOL) with 100 questions prepared to evaluate how an individual perceives life quality by reducing it to 26 questions. The scale, comprised of close-ended questions, comprised five sub-fields: general health status, physical, social, environmental, and psychological domains. The scale does not have a full score, and the increase in the score shows that life quality improves (31). The validity and reliability of this research have been confirmed in foreign studies (32). The quality of life group of the WHO (1996) has reported the correlation coefficient between the total result and the sub-result from 0.53 to 0.78 and between the sub-results from 0.51 to 0.64. In total, the obtained reliability and validity coefficient indicates the suitability of this scale to measure the quality of life in Iranian populations (33).

This study was approved by Persian Gulf University of Bushehr-Iran. The ethical considerations of the current research included informed consent, confidentiality of statistical information, and publication of results without publishing private information of the statistical sample. The data were analyzed through the descriptive statistics (mean, standard deviation, and frequency percentage), inferential statistics (Pearson correlation coefficient test and hierarchical regression analysis), and SPSS v.26.

Results

Among all the participants (n= 300), 157 individuals (52.33%) were male, and 143 individuals (47.67%) were female. The mean of age of male adolescents was 13.96 ± 0.803 years, and this mean for female adolescents was 14.007 ± 0.792 years, respectively. Table 1 displays the descriptive statistics of research variables. The Pearson correlation coefficient test was used to investigate the relationships of variables of COVID-19 anxiety and quality of life with psychological well-being (Table 2).

Table 1. Descriptive statistics of anxiety, quality of life, and psychological well-being

Variable	Mean	Standard deviation	Standard error (SE)	Min	Max
Anxiety	45.87	14.46	0.787	18	72
Quality of life	82.38	15.56	0.774	26	130
Psychological well-being	62.45	13.56	0.775	37	89

Table 2. Pearson correlation coefficient matrix

Variable	Anxiety	Quality of life	Psychological well-being
Anxiety	1		
Quality of life	-0.734	1	1
Psychological well-being	-0.659	-0.725	1

The above data indicate that COVID-19 anxiety has significant negative correlations ($P<$ 0.001) with quality of life and psychological well-being. Table 3 shows the effects of COVID-19 anxiety and quality of life on adolescents' psychological well-being. It reveals that psychological well-being is more influenced by quality of life in people affected by COVID-19 than in others.

As shown in Table 4, a comparison of regression models 1 and 2 indicates that quality of life significantly moderates the effect of COVID-19 anxiety on psychological well-being by 77.6% ($P<$ 0.001).

Table 3. Regression analysis results for psychological well-being based on quality of life and COVID-19 anxiety

Variable	β	P	R	R^2	F
Anxiety	-0.598	0.001	0.573	0.444	0.001
Quality of life	-0.521	0.001	0.776	0.761	0.001

Table 4. Hierarchical regression analysis results

Variable		B	SE	β	t	P
Model 1	Constant	87.323	4.157		41.235	0.001
	Anxiety	-0.765	0.087	-0.598	-12.654	0.001
Model 2	Constant	22.878	3.169		7.219	0.001
	Anxiety	0.087	0.065	0.080	2.324	0.094
	Quality of life	0.524	0.035	0.821	45.421	0.001

Discussion

According to the results, COVID-19 anxiety had a significant negative impact on adolescents' psychological well-being. This finding is in line with the study of Shang et al., which was conducted among only 16 experts in the Corona inpatient wards and was in the form of an open-ended interview. They concluded that treatment recommendations in this field increased the level of psychological well-being and quality of life of people (34). Also, Ahmed et al. conducted an online survey on a sample of 1074 Chinese individuals. They assessed anxiety, depression, psychological well-being, and alcohol consumption behavior through self-report instruments. The results showed that the level of anxiety, depression, dangerous and harmful alcohol use, and mental health is lower

than the usual ratio. The results also showed that young people aged 21 to 40 are more vulnerable in terms of mental health conditions and alcohol consumption (35). Lee et al. also investigated the psychometric properties of the coronavirus anxiety scale. They confirmed its relationship with psychological well-being and quality of life (23). Duan et al. investigated the relationship between mental health and anxiety of Corona. Their findings were in line with the results of the current study on the impact of COVID-19 and its anxiety on mental health (36). Considering the reciprocal causality between physical health and psychological health, especially during global crises such as pandemics (37), any physical health risk factor also threatens people's psychological health. COVID-19 anxiety is a risk factor that threatens the physical health of individuals; therefore, the greater the threat is, the more likely it is that the affected person will suffer from psychological health symptoms such as anxiety and depression (33). According to the results, COVID-19 anxiety significantly negatively affected adolescents' quality of life. This finding aligns with Sarin et al.'s study (38), which conducted on 4181 people. It is also consistent with the study by Whithauer et al. (39) and Ping et al.'s study (26). Also, Schiavi et al. studied on 89 couples during the coronavirus epidemic, and they found the negative effect of the COVID-19 epidemic on the quality of life of women in the same way as the present study (25). Finally, Zomalheto et al. assessed the quality of life of affected people. Their results were the same as the present study (24). The study population was only limited to the adolescents of Bushehr city. Due to the critical conditions of the pandemic, electronic questionnaires were used; thus, only people who had access to the Internet could participate in the study. In addition, because data were collected using self-report questionnaires, there may be errors or biases in responses; therefore, the accuracy of participants' responses cannot be fully guaranteed.

Moreover, the researcher could only use questionnaires to collect the required data due to some temporal, ethical, and legal constraints and considerations. Failure to collect information related to education and history of personal involvement with COVID-19 in demographic variables was another limitation of the present study. Therefore, the researcher suggests to investigate the role of other effective variables in predicting COVID-19 anxiety in the future.

Conclusion

Based on the results, there is a significant relationship between COVID-19 anxiety and psychological well-being. In addition, quality of life moderated the relationship between COVID-19 anxiety and psychological well-being in adolescents with one or more family member/members affected by COVID-19. Authorities can reduce the negative effects of COVID-19 anxiety by improving people's quality of life and regularly monitoring their psychological state.

Acknowledgments

The author thanks all the participants in this research and declares no conflict of interest.

References

1. Keating DPI, Demidenko M, Kelly D. Cognitive and neurocognitive development in adolescence. Reference module in neuroscience and biobehavioral psychology. The Netherlands: Elsevier; 2019.
2. Sawyer SM, Azzopardi PS, Wickremarathne D, Patton GC. The age of adolescence and young adulthood–Authors' reply. Lancet Child Adolesc Health 2018; 2(4): e7.
3. Orben A, Tomova L, Blakemore SJ. The effects of social deprivation on adolescent development and mental health. Lancet Child Adolesc Health 2020; 4(8): 634-40.
4. Zhou SJ, Zhang LG, Wang LL, Guo ZC, Wang JQ, Chen JC, et al. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. Eur Child Adolesc Psychiatry 2020; 29: 749-58.
5. Li F, Luo S, Mu W, Li Y, Ye L, Zheng X, et al. Effects of sources of social support and resilience on the mental health of different age groups during the COVID-19 pandemic. BMC Psychiatry 2021; 21: 1-4.
6. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate psychological responses and associated factors during the initial stage of the 2019 corona virus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health 2020; 17(5): 1729.
7. Huang J. Mental health survey of 230 medical staff in a tertiary infectious disease hospital for COVID-19. Chinese journal of industrial hygiene and occupational diseases 2020; 38(3): E001.
8. Coomes EA, Leis JA, Gold WL. Quarantaine. CMAJ 2020; 192(13): E338.

9. HuremovićD. Psychiatry of pandemics: Amental health responseto infection outbreak. Gewerbestrasse: Springer Nature; 2019.
10. Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. Compr Psychiatry 2018; 87: 123-7.
11. Rubin GJ, Wessely S. The psychological effects of quarantining a city. BMJ 2020; 368: m313.
12. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet 2020; 395(10227): 912-20.
13. Ivchenko A, Jachimowicz J, King G, Kraft-Todd G, Ledda A, McLennan M, et al. Evaluating COVID-19 public health messaging in Italy: Self-reported compliance and growing mental health concerns. MedRxiv 2020.03.27.20042820
14. Jung SJ, Jun JY. Mental health and psychological intervention amid COVID-19 outbreak: perspectives from South Korea. Yonsei Med J 2020; 61(4): 271-2.
15. Zhang J, Wu W, Zhao X, Zhang W. Recommended psychological crisis intervention response to the 2019 novel corona virus pneumonia outbreak in China: A model of West China Hospital. Precis Clin Med 2020; 3(1): 3-8.
16. Zhou X, Snoswell CL, Harding LE, Bambling M, Edirippulige S, Bai X, et al. The role of telehealth in reducing the mental health burden from COVID-19. Telemed J E Health 2020; 26(4): 377-9.
17. Tartibian B, Heidary D, Mehdipour A, Akbarizadeh S. [The effect of exercise and physical activity on sleep quality and quality of life in Iranian older adults: A systematic review]. Journal of gerontology 2021; 6(1): 18-31. (Persian)
18. Bowling A. Measuring health: A review of subjective health, well-being and quality of life measurement scales. 4th ed. UK: Open University; 2017.
19. Paul J, Jani R, Davoren P, Knight-Agarwal C. Association between a low carbohydrate diet, quality of life, and glycemic control in Australian adults living with type 1 diabetes: Protocol for a mixed methods pilot study. JMIR Res Protoc 2021; 10(3): e25085.
20. Daneshvar S, Khodamoradi A, Ghazanfari Z, Montazeri A. [Quality of life in diabetic patients: A comparative study]. Payesh (Health Monitor) 2018; 17(5): 541-50. (Persian)
21. Gaş S, Ekşi Özsoy H, Cesur Aydın K. The association between sleep quality, depression, anxiety and stress levels, and temporomandibular joint disorders among Turkish dental students during the COVID-19 pandemic. Cranio 2021: 1-6.
22. Protudjer JL, Golding M, Salisbury MR, Abrams EM, Roos LE. High anxiety and health-related quality of life in families with children with food allergy during corona virus disease 2019. Ann Allergy Asthma Immunol 2021; 126(1): 83-8.
23. Lee SA, Mathis AA, Jobe MC, Pappalardo EA. Clinically significant fear and anxiety of COVID-19: A psychometric examination of the Coronavirus Anxiety Scale. Psychiatry Res 2020; 290: 113112.
24. Zomalheto Z, Assogba C, Dossou-yovo H. Impact of the severe acute respiratory syndrome corona virus 2 (SARS-CoV2) infection and disease-2019 (COVID-19) on the quality of life of rheumatoid arthritis patients in Benin. Egypt Rheumatol 2021; 43(1): 23-7.
25. Schiavi MC, Spina V, Zullo MA, Colagiovanni V, Luffarelli P, Rago R, et al. Love in the time of COVID-19: Sexual function and quality of life analysis during the social distancing measures in a group of Italian reproductive-age women. J Sex Med 2020; 17(8): 1407-13.
26. Ping W, Zheng J, Niu X, Guo C, Zhang J, Yang H, et al. Evaluation of health-related quality of life using EQ-5D in China during the COVID-19 pandemic. PLoS One 2020; 15(6): e0234850.
27. Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. Lancet Psychiatry 2020; 7(6): 547-60.
28. Alipour A, Ghadami A, Alipour Z, Abdollahzadeh H. [Preliminary validation of the Corona Disease Anxiety Scale (CDAS) in the Iranian sample]. Health Psychology 2020; 8: 163-75. (Persian)
29. Ryff CD. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. J Pers Soc Psychol 1989; 57(6): 1069.
30. Khanjani M, Shahidi S, Fathabadi J, Mazaheri MA, Shukri A. [Factorial structure and psychometric properties of the short form (18 questions) of Ryff psychological well-being scale in male and female students]. Thought and behavior in clinical psychology 2013; 9: 27-36. (Persian)
31. WHOQOL O. Measuring Quality of life: The World Health Organization Quality of life instruments (The WHOQOL-100 and the WHOQOL-BRIEF). Geneva: Division of Mental Health and Prevention of Substance Abuse; 1997.
32. Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A report from the WHOQOL group. Qual life Res 2004; 13: 299-310.

33. Nejat S, Montazeri A, Holakouie Naieni K, Mohammad K, Majdzadeh SR. [The World Health Organization quality of Life (WHOQOL-BREF) questionnaire: Translation and validation study of the Iranian version]. Journal of School of Public Health and Institute of Public Health Research 2006; 4(4): 1-12. (Persian)
34. Shang Y, Pan C, Yang X, Zhong M, Shang X, Wu Z, et al. Management of critically ill patients with COVID-19 in ICU: Statement from front-line intensive care experts in Wuhan, China. Ann Intensive Care 2020; 10: 1-24.
35. Ahmed MZ, Ahmed O, Aibao Z, Hanbin S, Siyu L, Ahmad A. Epidemic of COVID-19 in China and associated psychological problems. Asian J Psychiatr 2020; 51: 102092.
36. Duan H, Yan L, Ding X, Gan Y, Kohn N, Wu J. Impact of the COVID-19 pandemic on mental health in the general Chinese population: Changes, predictors and psychosocial correlates. Psychiatry Res 2020; 293: 113396.
37. Hernandez R, Bassett SM, Boughton SW, Schuette SA, Shiu EW, Moskowitz JT. Psychological well-being and physical health: Associations, mechanisms, and future directions. Emotion Review 2018; 10(1): 18-29.
38. Sareen J, Jacobi F, Cox BJ, Belik SL, Clara I, Stein MB. Disability and poor quality of life associated with comorbid anxiety disorders and physical conditions. Arch Intern Med 2006; 166(19): 2109-16.
39. Witthauer C, Gloster AT, Meyer AH, Goodwin RD, Lieb R. Comorbidity of infectious diseases and anxiety disorders in adults and its association with quality of life: a community study. Front Public Health 2014; 2: 80.