Comparison of the Health-Promoting Lifestyle Dimensions between Students with Low and High Covid-19 Anxiety Levels

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Abstract

Introduction: Coronavirus pandemic and the resulting anxiety threatens the physical and mental health of individuals. This study aimed to compare the health-promoting lifestyle dimensions between two groups of students with severe and mild Coronavirus anxiety.

Method: Three hundred and Seventy undergraduate students of Arak University participated in this causal-comparative study in the academic year of 2020-2021. The participants were asked to complete two questionnaires of Coronavirus Anxiety and Health-Promoting Lifestyle Profile. Then, the two groups with mild (N = 37) and severe (N = 37) Coronavirus disease anxiety were selected through the screening and convenience sampling method. Finally, the two groups were compared in terms of health-promoting lifestyle dimensions using multivariate analysis of variance.

Results: The results concerning the analysis of the variance showed that there is a significant difference between the health-promoting lifestyle of the two groups with mild and severe Coronavirus anxiety. In addition, the group with mild Coronavirus anxiety reported higher spiritual growth compared to the group with severe Coronavirus anxiety.

Conclusion: According to the results, it seems that spiritual growth plays a significant role in the management and control of Coronavirus anxiety compared to the other dimensions of health-promoting styles.

Keywords: Health Lifestyle Dimensions, Coronaviruses, Anxiety

Introduction

Coronaviruses are a large family of viruses, which appear with clinical manifestations of pneumonia and infection, with a latency period of two to 14 days. They are associated with respiratory symptoms such as cough, dyspnea, fever, muscle pain, and fatigue. The Coronavirus Disease of 2019 (Covid-19) can damage different organs such as the lungs [1]. The virus was first identified by the World Health Organization (WHO) in a traveler who had visited Wuhan, China. Now, it has spread to all countries, including Iran as a global pandemic [2]. At the time of writing this article, on January 9, 2021, nearly 87,273,380 people around the world have been infected with the disease based on laboratory findings. The WHO has confirmed the deaths of 1,899,440 of these people. In Iran, 1237474 cases of infection and 55438 cases of death due to Cvid-19 have been reported [3].

The pandemic of Covid-19, the fear and anxiety of which have spread faster than the virus itself, threatening the physical health, has also become a threat to mental health by disrupting the social and economic systems and increasing feelings of fear and anxiety [4, 5]. These concerns can be due to the unknown and ambiguous nature of the virus and the lack of enough information, the weakness and lack of health resources, the systems' inability to meet the health needs of the population, and the economic issues and limitations arising from social policies [6, 7].

Although reasonable concern for health can have an adaptive and protective role; however, chronic and severe anxiety can be problematic and can weaken the immune system, leading to a vulnerable body to a variety of diseases including Covid-19 [8-10]. Therefore, there is a two-way relationship between the Covid-19 and the resulting anxiety.

Many factors, including lifestyle and health-promoting behaviors, are associated with anxiety [11], and these factors may also be associated with coronary anxiety. Many years ago, the role of an unhealthy lifestyle was found in at least 50% of US deaths through a comprehensive survey by the US Department of Health, Edu cation, and Welfare [12]. Since then, many health promotion interventions initiated their plans to change people's lifestyles by identifying the risk factors and providing related information [13]. The evidence suggests that people's lifestyles and choices affect their health and longevity [14, 15]. Lifestyle is defined as the daily conventional and ordinary activities that are accepted by individuals [16], and is one of the most important criteria that is closely related to health [17-20]. Health promotion in the form of a positive and dynamic process gives people the ability and possibility to improve health and take control of it [21]. Health promotion means the science and art of changing lifestyle to achieve the desired perfection. It includes behaviors through which a person deals with proper nutrition and regular exercise. Through such a lifestyle, the person avoids destructive behaviors and drugs and protects itself against accidents, diagnoses the symptoms of the disease in the physical dimension, controls emotions, feelings, and thoughts, copes with stress and problems in the psychological dimension, and considers independence, adjustment, and improvement of interpersonal relationships in the social dimension [22]. Health-promoting lifestyle is a multidimensional model of self-initiating actions and perceptions, which serves to maintain or improve the level of well-being, self-fulfillment, and self-realization [21]. This style includes six factors of responsibility for personal health, physical activity, nutrition, spiritual excellence, interpersonal relationships, and stress management [23].

According to research, an unhealthy lifestyle is associated with increased stress and anxiety [15, 24]. The findings of Nowruznia et al. [25] suggest that there is an inverse and decreasing correlation between anxiety and health-promoting behaviors, and the strongest correlation in different subscales of health-promoting behavior is related to spiritual growth. Research findings also indicated the predictive role of a health-promoting lifestyle in reducing anxiety [11]. Health-promoting lifestyle components are also negatively related to death anxiety [26]. Different aspects of lifestyle also play a role in coronary anxiety, so that coronary anxiety has a negative relationship with personal and spiritual growth and a positive and constructive relationship with others, as well as responsibility in health [27].

Given that a healthy lifestyle, as a person's selective way to deal with life duties and events can be effective in preventing and managing stress and anxiety, it seems that in the current critical situation due to the spread of Covid-19 in societies, understanding some aspects of the lifestyle that is closely related to Covid-19 anxiety is essential.

As mentioned before, the present study compares the health-promoting lifestyle dimensions of the two groups of students with severe and mild Covid-19 anxiety.

Method

This study used a causal-comparative research design. The statistical population of the study was undergraduate students of Arak University, Arak, Iran, in the academic year of 2020-2021. The first sampling of the study was based on Morgan and Krejcie table, including 370 subjects who were selected through the convenience sampling method. The participants were asked to complete two questionnaires of Coronavirus Anxiety and Health-promoting Lifestyle Profile. Then, according to the range of standard T scores in the Coronavirus Anxiety Scale (range of non-anxiety or mild: T≥39, moderate 40≥T≥60 and severe: T≥61), the two groups with mild, and severe Covid-19 were selected by the screening method. The sampling method of this stage was accessible and purposive. The two groups were homogeneous in terms of age and gender. Usually in causal-comparative studies, the minimum sample size for each group is 15 people [28]. To increase the external validity of the study, the sample size for each group was 37 people. The inclusion criteria were: 1) lack of serious problems (e.g. severe physical or mental illness), 2) no substance abuse, and 3) personal willingness to participate in research. On the other hand, those who failed to complete the research tool were excluded from the study. Finally, the two groups were compared in terms of health-promoting lifestyle dimensions using multivariate analysis of variance.

The tools used in this study were as follows:

Health-Promoting Lifestyle Profile (HPLP): The original version of this questionnaire was developed by Walker et al. [29], based on Pender's health promotion model for measuring health-promoting behaviors. The revised version developed by Walker et al. [23] is also a multidimensional assessment tool for health-promoting behaviors. It includes 52 items and six aspects of health-promoting behaviors including nutrition, physical activity, spiritual growth, health responsibility, stress management, and interpersonal relationships. Each question is graded on a four-point Likert scale, from never (1) to always (4). The reliability of subscales of this test is reported in Cronbach's alpha method in the range of 0.79 to 0.94 [30]. In Iran, Shekari et al. [30] obtained internal consistency coefficients of the subscales between 0.56 and 0.80 and observed high construct and factor validity.

Corona Disease Anxiety Scale: This scale has been prepared and validated to measure anxiety resulted from Covid-19 in Iran. The final version of this tool has 18 items and two components. Items one to nine measure psychological symptoms and items 10 to 18 measure physical symptoms. Each question in this tool is graded on a four-point Likert scale, from never (0) to always (3). Therefore, the highest and lowest scores that the

respondents get from this questionnaire are between 0 and 54. The reliability of this tool has been reported to be 0.92 using Cronbach's alpha method, so its validity was desirable [31].

Results

The dimensions of health-promoting lifestyle as a dependent variable were compared in the two groups with severe and mild Covid-19 anxiety. Table 1 shows the mean and standard deviation of the scores of the health-promoting lifestyle subscales of the two groups with severe and mild Covid-19 anxiety.

Since the present study had two independent groups that were compared based on several dependent variables (i.e. components of health-promoting lifestyle), the data were analyzed using multivariate analysis of variance. The results of the Box Test showed that the significance level is greater than 0.05, which indicates a null hypothesis based on the homogeneity of covariance matrices in each group (F = 0.98, P = 0.48). The results of the Levin Test for examining the homogeneity of variance of health-promoting lifestyle subscales in the groups showed that

the variance of all subscales in the groups was equal. Therefore, since the assumptions of the multivariate analysis of variance were met, this test was used to analyze the differences between the two groups. Table 2 reports the results of multivariate analysis of covariance to examine the differences between the health-promoting lifestyle in the two groups.

According to Table 2, the linear combination of the dependent variables is significantly different. Therefore, it is inferred that there is a significant difference between the health-promoting lifestyle of the two groups with severe and mild Covid-19 anxiety. The results of the univariate variance analysis of these variables are shown in Table 3.

According to the results, the value of obtained F was significant for the spiritual dimension (Table 3). Therefore, the mean scores of this variable were significantly different between the two groups. According to the data presented in Table 1, the group with mild Covid-19 anxiety reported higher spiritual growth compared to the group with severe Covid-19 anxiety.

Table 1. Descriptive Indicators of Health-promoting Lifestyle Subscales' Scores of the Two Groups with Severe and Mild Covid-19 Anxiety

variable	Covid-19 Anxiety	Mean	SD
Stress	Low	19.95	3.70
	High	18.05	4.72
Interpersonal	Low	26.13	4.66
	High	25.24	4.87
Spiritual	Low	26.08	5.56
	High	22.51	5.48
Nutrition	Low	22.24	3.82
	High	22.92	5.36
Physical	Low	15.97	4.37
	High	14.40	4.19
Responsibility	Low	17.70	4.59
	High	19.70	5.88

Table 2. MANOVA Test Results Representing the Main Effect of Group Variables on the Dependent Variables

Variable	Test	Value	F	P	Eta Squared
Group	Pillai's Trace	.22	3.14[a]	.009	.22
	Wilks' Lambda	.78	3.14[a]	.009	.22
	Hotelling's Trace	.28	3.14[a]	.009	.22
	Roy's Largest Root	.28	3.14[a]	.009	.22

Table 3. Univariate Analysis of the Variance of the Health-promoting Lifestyle Components

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	P	Partial Eta Squared
Group	Stress	66.21	1	66.21	3.67	.059	.04
	Interpersonal	14.71	1	14.71	.64	.423	.009
	Spiritual	235.45	1	235.45	7.72	.007	.09
	Nutrition	8.44	1	8.44	.39	.534	.005
	Physical	45.45	1	45.45	2.48	.119	.03
	Responsibility	74.00	1	74.00	2.66	.107	.03

Discussion

As seen in the results, the health-promoting lifestyle varies between people with mild and severe Covid-19 anxiety. The observed difference was related to the spiritual component. These findings are consistent with the results of previous studies [11, 15, 24, 25, 27].

Explaining the observed differences between the spiritual

component of the health-promoting lifestyle among the individuals with mild/severe Covid-19 anxiety, it can be said that spirituality can be associated with less anxiety by making significant changes. In addition, spirituality increases hope and tolerance of the negative symptoms, thus improves the quality of life. Spirituality as a source of strength and comfort can help to reduce psychological

symptoms and improve life satisfaction. Spirituality during the pandemic of Covid-19 leads to better coping with limitations and problems, empowering the patient in various areas ranging from emotional (increasing self-esteem and self-control) to social (strengthening relationships through participating in religious activities) [32]. Religious beliefs may allow a person to interpret events as uncontrollable, creating less stress or more meaning. This can change the situation in a way that prevents self-blame and creates a feeling of powerlessness. Attributing negative events to outside forces may also lead to a more optimistic attribution style, that is, negative events are "God's will" (not anyone's fault), and positive events are the reward or result of "obedience" or "good behavior." The support that individuals receive from members, leaders, and clergy of religious groups is widely regarded as one of the main mediators between spirituality and mental health [33]. This support includes protection against social isolation, providing and strengthening social and family networks, creating a sense of belonging and self-esteem and providing spiritual support in difficult situations [34].

On the other hand, some researchers argue that spiritual elements are associated with various physiological mechanisms involved in health. Hope, satisfaction, love, and forgiveness are among the emotions that are reinforced in many spiritual traditions, which can help a person by affecting the neural pathways connected to the endocrine glands and the immune system. In addition, negative emotions that are actively suppressed in many religions, such as anger or fear, trigger the release of the neurotransmitter norepinephrine and the endocrine hormone cortisol. Sustained levels of these emotions can lead to immune system inhibition, increasing the risk of infection, high blood pressure, and cardiovascular disease. Meditation and silent prayer can reduce the norepinephrine and cortisol levels, thus reducing anxiety and related mental health problems [35].

Another factor is the capacity that spirituality provides to explain the concept of anxiety and its overcome, especially in the Covid-19 pandemic. A review of the related literature showed that the patients with spiritual behaviors and practices find it easier to cope with losses so that it is associated with their quality of life [36].

In general, the positive relationship between spirituality with mental health and low anxiety can be due to several components such as giving meaning to life, strengthening beliefs in an effort to improve oneself, benefiting from social support, ways of expressing stress, helping to overcome the limitations, adhering to the treatment and maintaining optimism and hope [32].

Although these explanations are somewhat accurate, it should be noted that the group with severe Covid-19 anxiety in this study did not necessarily consist of clinical specimens or severe cases. They were selected based on the SPIN cut-off point and may not be severely anxious. In other words, this study was performed on students who were separated based on their own report and non-clinical symptoms of anxiety. Accordingly, caution should be considered in generalizing the findings to clinical specimens.

The main limitation of the present study was the difficulty in controlling all the intervening variables and separating their role from the independent variables due to the nature of the causal-comparative research design used in this study. Therefore, it is necessary to examine the relationship between these variables using a more controlled research design and detailed causal studies. In addition, given that it was relatively difficult to find students with Covid-19 anxiety, the small sample size was another limitation that should be considered in future studies. However, the results of this study can be a great help in developing health and public health programs by introducing spiritual growth as an important dimension of health promotion style related to Covid-19 anxiety and its consequences.

Conclusion

According to the findings, it can be stated that among the various dimensions of health-promoting styles, it is only the spiritual growth dimension that have a significant relationship with coronary anxiety. Hence, it is necessary to study spiritual development more seriously to understand this dimension of health-promoting style in a better way. As spiritual growth varied among people with severe and mild Coronavirus anxiety, the need to include the related post-lifestyle education programs in health and wellness programs is essential.

Conflicts of Interest

The authors declare no conflicts of interest.

Ethical Approval

This research had no ethics code issued by an ethics committee. However, all ethical principles were considered during the course of the study. In this regard, the participants were informed about the general purpose of the research, freedom to participate in the research or leave the study, and the confidentiality of information.

Acknowledgement

References

1. Xu Z, Shi L, Wang Y, Zhang J, Huang L, Zhang C, et al. Pathological findings of COVID-19 associated with acute respiratory distress syndrome. The Lancet respiratory medicine. 2020; 8(4):420-2. doi:10.1016/S2213-2600(20)30076-X.
2. Hageman JR. The coronavirus disease 2019 (COVID-19). Slack Incorporated Thorofare, NJ; 2020. doi.org/10.3928/19382359-20200219-01.
3. WHO. 2021. https://covid19.who.int/.
4. Ghebreyesus TA. Addressing mental health needs: an integral part of COVID‐19 response. World Psychiatry. 2020; 19(2):129.
5. Ojiaku CM, Iorfa S, Mefoh PC, Ezeuzo O, Odinko IC. COVID-19-Induced Anxiety and Covid-19 Precautionary Measures as Predictors of Mental Wellbeing of Nigerians. International Journal of Behavioral Sciences. 2020; 14(3):149-54. doi: 10.30491/ijbs.2020.239210.1342.
6. Bong C-L, Brasher C, Chikumba E, McDougall R, Mellin-Olsen J, Enright A. The COVID-19 pandemic: effects on low-and middle-income countries. Anesthesia and analgesia. 2020;131(1):86-92.

doi:10.1213/ANE.0000000000004846

7. Cénat JM. The vulnerability of low-and middle-income countries facing the COVID-19 pandemic: The case of Haiti. Travel medicine and infectious disease. 2020; 37:101684. doi:10.1016/j.tmaid.2020.101684.

8. Asmundson GJ, Taylor S. How health anxiety influences responses to viral outbreaks like COVID-19: What all decision-makers, health authorities, and health care professionals need to know. Journal of anxiety disorders. 2020; 71:102211. doi:10.1016/j.janxdis.2020.102211.

9. Bajema KL, Oster AM, McGovern OL, Lindstrom S, Stenger MR, Anderson TC, et al. Persons evaluated for 2019 novel coronavirus—United States, January 2020. Morbidity and mortality weekly report. 2020; 69(6):166-170.

10. Jawhara S. How to boost the immune defence prior to respiratory virus infections with the special focus on coronavirus infections. Gut Pathogens. 2020; 12(1):1-6. doi:org/10.1186/s13099-020-00385-2.

11. Basharpoor S, Heydarirad H, Atadokht A, Daryadel SJ, Nasiri-Razi R. The role of health beliefs and health promoting lifestyle in predicting pregnancy anxiety among pregnant women. Iranian Journal of Health Education and Health Promotion. 2015; 3(3):171-180. http://journal.ihepsa.ir/article-1-260-en.html.

12. People H. The Surgeon General's Report On Health Promotion and Disease Prevention. US Department of Health, Education, and Welfare. Public Health Service, Office of the Assistant Secretary for Health and Surgeon General Washington, DC: US Government Printing Office. 1979. https://profiles.nlm.nih.gov/101584932X92

13. Kelly MP. Health promotion in primary care: taking account of the patient's point of view. Journal of Advanced Nursing. 1992; 17(11):1291-1296.

14. Mohammadi Zeidi I, Pakpour Hajiagha A, Mohammadi Zeidi B. Reliability and validity of Persian version of the health-promoting lifestyle profile. Journal of Mazandaran University of Medical Sciences. 2012; 21(1):102-113. http://jmums.mazums.ac.ir/article-1-955-en.html

15. Siboni FS, Alimoradi Z, Khatooni M, Atashi V. The role of health promotion behavior in controlling anxiety and stress in patients with hypertension. ARYA Atherosclerosis. 2012:208-211.

16. Afsahi F, Kachooei M. Comparison of Health-Promoting Lifestyle and Health Locus of Control in Individuals with Hypertension and Healthy Individuals. International Journal of Behavioral Sciences. 2019; 13(3):111-116.

17. Fadaei M. The relationship between lifestyle and the meaning of life in Alfred Adler's thought. J Res Bull Lifestyle. 2016; 2(3):65-76. http://jams.arakmu.ac.ir/article-1-6279-en.html

18. Ghanbari Sartang A, Dehghan H, Abbaspour Darbandi A. A review of health promotion lifestyle comparisons in shift and non-shift nurses. Journal of Rehabilitation in Nursing Research. 2015; 2(2):32-38. http://ijrn.ir/article-1-195-fa.html

19. Najjarnasab S, Dashbozorg Z. The effect of motivational interviewing on health promoting lifestyles and blood pressure of women with eating disorders. Quarterly journal of health psychology. 2019; 8(31):103-118. doi: 10.30473/hpj.2019.40367.4005

20. Singer JE. The need to measure life style. International Review of Applied Psychology. 1982. doi.org/10.1111/j.1464-0597.1982.tb00101.x

21. Hui W-HC. The health-promoting lifestyles of undergraduate nurses in Hong Kong. Journal of professional nursing. 2002; 18(2):101-111. doi:10.1053/jpnu.2002.32346

22. Shaban M, Mehran A, Taghlili F. Relationship between perception of health concept and health promoting behaviors: A comparative study among Tehran university medical and non-medical Students. 2007 ; 13 (3) :27-36.

23. Walker SN, Sechrist KR, Pender NJ. Health promotion model-instruments to measure health promoting lifestyle: Health-promoting lifestyle profile [HPLP II] (Adult version). 1995.

24. Diaz-Godiño J, Fernández-Henriquez L, Peña-Pastor F, Alfaro-Flores P, Manrique-Borjas G, Mayta-Tovalino F. Lifestyles, depression, anxiety, and stress as risk factors in nursing apprentices: a logistic regression analysis of 1193 students in Lima, Peru. Journal of environmental and public health. 2019;7395784. doi:10.1155/2019/7395784

25. Norouzinia R, Aghabarari M, Kohan M, Karimi M. Health promotion behaviors and its correlation with anxiety and some students' demographic factors of Alborz University of Medical Sciences. Journal of health promotion management. 2013; 2(4):39-49. http://jhpm.ir/article-1-236-en.html

26. Atadokht A, Rahimi S, Valinejad S. The Role of Health Promoting Lifestyle and Religious Orientation in Predicting Quality of Life and Death Anxiety in Elders. Aging Psychology. 2018; 4(2):143-154.

27. Fathi A, Sadeghi S, Maleki Rad A A, Rostami H, Abdolmohammadi K. Effect of Health-promoting Lifestyle and Psychological Well-being on Anxiety Induced by Coronavirus Disease 2019 in Non-medical Students. J Arak Uni Med Sci. 2020; 23 (5):698-709. http://jams.arakmu.ac.ir/article-1-6279-en.html

28. Delavar A. Probability and applied statistics in psychology and educational sciences. Tehran: Roshd Publication. 2011.[persion]

29. Walker SN, Kerr MJ, Pender NJ, Sechrist KR. A Spanish language version of the Health-Promoting Lifestyle Profile. Nursing research. 1990; 39(5):268-273.doi: 10.1097/00006199-199009000-00003.

30. Shekari O, Tamizi N, Pour Shahriyar H, Abdollah Poor M, Akhavi Z, Lavaf H. Psychometric Properties Of Health-Promoting Life Profile-Ii Among University Students. Training Measurement. 2015; 6(21):41-60.

31. Alipour A, Ghadami A, Alipour Z, Abdollahzadeh H. Preliminary validation of the Corona Disease Anxiety Scale (CDAS) in the Iranian sample. Quarterly Journal of Health Psychology. 2020; 8(32):163-75. doi: 10.30473/hpj.2020.52023.4756.

32. Júnior JG, de Sales JP, Moreira MM, de Lima CKT, Neto MLR. Spiritual beliefs, mental health and the 2019 coronavirus (2019-nCoV) outbreak: what does literature have to tell us? Frontiers in Psychiatry. 2020; 11. 570439. doi:10.3389/fpsyt.2020.570439

33. Hill PC, Pargament KI. Advances in the conceptualization and measurement of religion and spirituality: Implications for physical and mental health research. American psychologist. 2003; 58(1):64-74. doi:10.1037/0003-066x.58.1.64.

34. Loewenthal KM. Mental health and religion: Chapman & Hall; 1995.

35. Seybold KS, Hill PC. The role of religion and spirituality in mental and physical health. Current directions in psychological science. 2001; 10(1):21-24. doi:10.1111/1467-8721.00106

36. De Freitas Melo C, Sampaio IS, de Abreu Souza DL, dos Santos Pinto N. Correlação entre religiosidade, espiritualidade e qualidade de vida: uma revisão de literatura. Estudos e Pesquisas em Psicologia. 2015; 15(2):447-464.