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Original Article

Comparing the Effect of Exercise, Following Religious Beliefs and Music on Anxiety in Medical Staff due to Corona Virus.

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Abstract

Background: Rapid outbreak of the corona virus disease, constant contact with contaminated and high-risk environments, and increasing numbers of mortality from coronavirus have affected anxiety level, increasing the medical staff stress and anxiety that not only weaken the immune system and make them vulnerable to coronavirus disease but also it may prevent the treatment staff from fighting with coronavirus. Therefore, the aim of this study is to compare the effect of exercise, following the religious beliefs and listening to music on anxiety level due to treatment staff coronavirus .

Methods: This quasi-experimental study is performed with pre-test and post-test with 6 experimental groups and a control group. The study's population was all the hospitals' treatment staff in the southern part of Iran (Fars, Kohgiluyeh and Boyer-Ahmad, Chaharmahal and Bakhtiari and Khuzestan provinces) that provided services to Corona virus patients. The sample size was 77 people who were randomly and purposefully selected.

Results: The results of the dependent t-test showed that there is a significant difference between pre-test and post-test scores in the exercise volunteers groups, following religious beliefs volunteers, listening to music volunteers and random exercise, which showed their effect on reducing Corona virus anxiety level in the treatment staff. There is no significant difference between the pre-test and post-test scores of the control group, the following religious random group and the listening to music random group.

Conclusion: Exercise and physical activity due to the predominance of physical and physiological aspects, whether it is the desire of the treatment staff or not according to their desire, reduces anxiety level in the treatment staff. However, following religious beliefs and listening to music, due to the predominance of its spiritual and doctrinal dimension, reduces the anxiety level of the medical staff only when it is based on one's wishes and desires.

Keywords: Anxiety, Corona, Exercise, Religiosity, Treatment staff

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Introduction

Coronavirus is an acute respiratory disease of unknown origin that began in December 2019 in Wuhan, China (Wang) and spread rapidly around the world. On January 20, China confirmed the human-to-human transmission of the virus (1), and the World Health Organization named the corona as a global concern (2) setting an emergency meeting on January 30, 2020. Although recent reports have shown that 80% of patients with corona virus disease have mild symptoms and recover and the mortality rate is up to 2%, due to the high rate of transmission, the total mortality rate due to corona virus disease is higher than Acute Respiratory Syndrome and Respiratory Syndrome of the Middle East (3). The corona virus pandemic has been described as the worst public health crisis in a generation (4). This global crisis poses various challenges for healthcare employees around the world. Increased workload, high-risk situations with constant contact with polluted and high-risk environments with inadequate protection against pollution, increased mortality from coronavirus, lack of contact with family members, fatigue and rapid access to information and false information on the Internet and Social media has caused mental health problems and anxiety level in the medical staff (5). Stress and anxiety can not only weaken the immune system and make them vulnerable to diseases such as corona virus disease (6), but it may also prevent the treatment staff from fighting with corona virus (7). Due to the high prevalence of anxiety and depression symptoms, especially among health care employees, identifying and developing strategies to deal with anxiety among this group is essential and can prevent corona virus disease, increase mental health and improve quality. It is essential to help the staff work and live (7). Medication and cognitive behavioral therapy are common therapies for treating anxiety (7, 8). In addition to the fact that about one-third of patients do not respond to these two treatments, medication has negative side effects and the time required for behavior Cognitive therapy is also long, which may more affect anxiety level.

(8). For these reasons, and also because coronavirus anxiety is not a disease, it seems that the use of simple and uncomplicated methods can play a great role in reducing the severity of anxiety. Previous studies have examined the role of exercise and physical activity, following religious beliefs and music as effective factors in reducing anxiety in different statistical communities (8).

Many studies have shown the protective effects of various exercise protocols on various systems of the body, including the nervous system (9, 10). In addition, exercise has a positive

and significant effect on a person's mood and its beneficial effects on various mental disorders have been shown (9). There is an evidence that exercise can improve anxiety symptoms in people with anxiety disorder (11). Exercise and physical activity are associated with reducing symptoms of depression and anxiety, delaying cognitive decline, increasing self-esteem and a sense of energy, and increasing overall quality of life. The basic mechanisms of this relationship are partly devoted to the physiological effects of exercise and minor to psychological processes (12). Research results confirmed the effect of exercise and physical activity on reducing anxiety (13-17). Also, the results of evidence showed that exercise and physical activity have no effect on anxiety (18). The research literature has suggested that the discrepancy in these results is likely due to differences in exercise version and severity as well as the severity of anxiety in the population (19). However, various studies have confirmed the effect of exercise at different intensities on different types of anxiety (19).

Another variable that affects anxiety level is the following religious beliefs. Growing research in recent decades has examined the relationship between religiosity and mental health, including anxiety (20). In this regard, confrontation and religious compatibility is a way that human beings use religious beliefs and rituals to deal with the problems and pressures of life (21). Religious orientations, preservation of beliefs, activities and spiritual practices are significant assets for coping with difficult situations and life (22). For example, studies show that attending rituals reduces anxiety. The relationship between religion and health is partly explained by health behaviors, psychological and social variables, and biological factors (23). Religion plays an important role in the personality and worldview of many people. It can provide personal benefits such as coping mechanisms, a framework for sense-making, and the source of motivation (24). Empirical studies on the relationship between practice of religious beliefs and anxiety have produced conflicting or mixed results. Studies showed that religiosity and following religious beliefs affect the anxiety reduction (20, 24, 25). On the other hand, researches showed that religiosity and adherence to religious beliefs do not reduce anxiety (26, 27). The change in these results is most likely due to differences in the conceptualization and operational definition of religiosity and the performance of religious and anxiety practices and the type of religiosity in the study population (28).

One of the variables that affects anxiety level is listening to music. The soothing and

relaxing properties of music have long been known. Music has always played a calming, invigorating, and manic role in human life, reducing heart rate and deepening breathing, has positive effects on anxiety and pain relief (29). Various empirical studies have shown that listening to music leads to mental, behavioral, and physiological changes related to stress and reduced anxiety. In fact, listening to music has been used as a tool to calm and manage anxiety in a wide range of fields, for example, hospitals, dental clinics and offices (30). Even in some hospitals in Iran and other countries during the corona virus period, medical staff spontaneously used music to reduce anxiety, which had a global impact. Music reduces a person's feelings of anxiety by distracting them and reducing their concentration on anxious stimuli. One of the psychological effects of music is relaxation, which reduces heart rate, respiration rate and metabolism (13). The effect of music on our physiological and cognitive state is not very simple. Reactions to music are very individual and context-based. It varies with personality, experience, environment, age, taste and cultural background (31). Researches showed that music has an effect on reducing anxiety (30, 32-34).

In summary, because the anxiety level is high due to corona virus among the treatment staff, it is necessary to identify simple and uncomplicated methods to reduce it. Exercise and physical activity, following religious beliefs and music are three uncomplicated methods which are effective on reducing anxiety that have been studied in previous studies and in different statistical communities. However, according to the research background, research results have not always confirmed the effect of exercise and physical activity and listening to music on reducing anxiety, and the results have been sometimes contradictory, with the research literature attributing conflicting results to the effect of exercise on anxiety due to differences. In the sports version and the intensity as well as the severity of anxiety in the study population, the cause of contradictory results in the impact of religiosity and practice of religious beliefs is due to differences in conceptualization and definitions of these variables and the type of religiosity due to differences in personality, experience, environment, age, taste and cultural background of the study population, but these differences seem to be more a function of motivational influences and individual characteristics. in the present study, the research group has studied the effect of exercise and physical activity, following religious beliefs and listening to music on coronavirus anxiety level in the treatment staff with a new look and based on the theory of desire and tendency of the subject. On the other hand, so far no comprehensive research has been done that

compares the effects of these three methods of reducing anxiety. Therefore, the research team in this study seeks to answer these questions, which of these variables is more effective? Do they have any cure for reducing coronavirus anxiety level? Is there a difference in the effect of these three variables when the treatment staff voluntarily and randomly intervenes in the relevant independent variable (exercise and physical activity, practicing religious beliefs and listening to music).

Material and methods

This study was a quasi-experimental design with pre-test and post-test and 6 experimental groups and a control group. In the three experimental groups, the treatment staff volunteered in one of the exercise groups, following religious beliefs and listening to music, and in the other three experimental groups, the treatment staff were randomly assigned to one of the groups of exercise, following religious beliefs and listening to music. The study population was considered due to the possibility of non-cooperation of medical staff to participate in the study due to special corona virus condition and includes all iran southern provinces' hospitals (Fars, Kohgoluyeh and Boyerahmad, Chaharmahal and Bakhtiari and Khuzestan). They provide services directly to corona virus patients. The sample size for this study was 14 people for each group and a total of 98 people. During the study, 21 people were excluded from the research process for various reasons (personal reluctance and lack of complete independent variable) and the final sample size was 77. (14 people in control group, 11 people in voluntary sports group, 11 people in voluntary group performing religious acts, 12 people in voluntary group listening to music, 10 people in random sports group, 8 people in random group performing religious acts and 11 people in random group listening to music). In order to comply with the ethical considerations of the research, the principle of confidentiality of the scores of the medical staff was considered and also attending the course was non-mandatory. In order to control the intervening variables, the members of all 7 groups were matched in terms of demographic variables including age, sex, marital status in order to minimize the intervening variables. The test was the Anxiety Inventory caused by COVID-19 administered online in two stages as pre-test and post-test with an interval of 4 weeks. Thus, before the intervention of independent variables, pre-test was performed to all seven groups of samples. Then, voluntary and randomized experimental groups performed exercise and physical activity for one month, 4

days a week and every day for half an hour to forty minutes, with the coordination and control of the research group to perform sports exercises recommended by the World Health Organization for exercising during coronavirus-induced home quarantine, this package is recommended for every workout including walking, knee-elbow, plank, back stretching, squats, lateral knee lift, Superman movement, bridge movement, immersion. Sit in the chair, stretch the chest and show the child, which was done according to the instructions in the package. Voluntary and random experimental groups performed religious acts during a similar period of time, in coordination with the research group, according to the circumstances, recited the Qur'an and religious prayers (Tawassul prayer, Nadbah, Ashura pilgrimage, etc.). Voluntary and randomized experimental groups listened to their favorite music during a similar period of time, coordinated by the research group (if they were not interested in specific music in the random group, they played percussion music, listened to a slow song selected by music experts).

Statistical Analysis

All of the above remotely and through were cyberspaced by the control research group. After performing the independent variables, the post-test was held again in the experimental and control groups. The content of the questions in both pre-test and post-test were exactly the same. The validity of the questionnaire was confirmed by a poll of 14 psychology professors after changes in the questionnaire and its reliability was obtained through Cronbach's alpha of 0.89. In order to analyze the data and evaluate the normality of the distribution of scores, in addition to examining skewness and elongation, Shapiro-Wick test was used to compare scores between groups and within groups after applying the independent variable, ANOVA, dependent t-test and LSD post hoc test.

Results

Although the groups were matched in terms of age, sex, and marital status, no demographic questions were asked to assure the subjects that their answers were confidential, so this study does have lack of demographic characteristics.

To evaluate the normality of data distribution while examining the skewness and elongation of variables in the pre-test and post-test of experimental and controlled groups, Shapiro-Wilk test was used. As shown in Table (1), given that the skewness and elongation

of the coronary anxiety variable in all groups in the pre-test and post-test was between the values of 3- and +3, and the significant value of the Shapiro test in all groups in the pre-test and post-test was greater than 0.05, the normality of data distribution in all groups in the pre-test and post-test is confirmed.

Table 1. Kolmogorov smirnov test results

Pre-test			**Post-test**		
kurt	skewness	Shapiro	kurt	skewness	shapiro
1.575	0.569	0.076	1.528	0.942	0.131
2.884	-1.275	0.081	1.051	0.785	0.743
1.352	0.779	0.227	0.623	0.401	0.813
0.934	0.532	0.202	-0.097	0.480	0.692
2.031	0.525	0.199	0.199	-1.088	0.588
-0.561	0.378	0.911	0.608	0.402	0.983
1.735	-1.002	0.483	-0.073	-0.019	0.983

First and before the introduction of independent variables in the study, a corona virus anxiety questionnaire was distributed between the experimental groups and the controlled group, as shown in Table (2)

Table 2. ANOVA test results for comparing experimental pre-test and controlled groups

	Sum of squares	**Degree of freedom**	**Average square**	**F**	**Sig**
between groups	0.389	6	0.065	0.321	**0.924**
within groups	14.139	70	0.202		
total	14.528	76			

After entering the independent variable, coronavirus anxiety test was taken again for all 7 groups. Dependent t-test was used to evaluate the difference between pre-test and post-test scores in each of the experimental and control groups, as shown in Table (3) between the pre-test and post-test scores in the group. There is a significant difference between voluntary exercise, voluntary following religious beliefs, voluntary music listening, and casual exercise, which show their effect on reducing corona virus anxiety level in the treatment staff. The results also showed that there was no significant difference between the pre-test and post-test scores of random groups performing religious acts and random listening to music.

Table 3. Dependent T-test results for comparing pre-test and post-test

Factors	**Pre-Test**		**Post-Test**		**T**	**df**	**sig**
	Average	Standard deviation	Average	Standard deviation			
controlled	4.1681	0.4132	4.1008	0.3658	0.556	13	0.558
Exercise voluntary	4.1387	0.5974	3.1429	0.4810	21.910	10	0.000
Religious voluntary	3.9538	0.4030	2.6639	0.2346	14.159	10	0.000
Music voluntary	4.0840	0.4412	3.5546	0.3696	11.667	11	0.000
Exercise randomly	3.9748	0.5752	3.3067	0.4862	3.841	9	0. 004
Religious randomly	3.9622	0.5870	3.7353	0.4351	1.595	7	0.155
Music randomly	4.1891	0.5342	0.9790	0.4411	0.512	10	0.620

Table 4. ANOVA test results for comparing experimental post-test and controlled groups

	Sum of squares	**Degree of freedom**	**Average square**	**F**	**Sig**
Between groups	19.267	60	3.211	29.125	0.000
Within groups	7.718	70	0.110		
Total	26.958	76			

The ANOVA test results show that there is a significant difference between corona virus anxiety in the post-test groups. This means that there is a significant difference between at least two groups. The LSD post hoc test was used to understand the differences among the seven groups in this study and the differences among them. The test results are given in

Table (5).

Table 5. Post hoc test results

Comparing two groups		**Means difference**	**Standard deviation error**	**significance**
controlled	Exercise voluntary	1/09893	0/13379	0/000
controlled	Religious voluntary	1/44118	1/3379	0/000
controlled	Music voluntary	0/56373	0/13063	0/000
controlled	Exercise randomly	0/64118	0/13748	0/000
controlled	Religious randomly	0/24265	0/14717	0/104
controlled	Music randomly	0/10428	0/13379	0/438
Exercise voluntary	Religious voluntary	0/34225	0/14159	0/018
Exercise voluntary	Music voluntary	-0.53520	0/13861	0/000
Exercise voluntary	exercise randomly	-0/45775	0/14508	0/002
Exercise voluntary	Religious randomly	-0/85268	0/15429	0/000
Exercise voluntary	Music randomly	-0/99465	0/14159	0/000
Religious voluntary	Music voluntary	-0/87745	0/13861	0/000
Religious voluntary	Exercise randomly	-0/80000	0/14508	0/000
Religious voluntary	Religious randomly	-1/19853	0/15429	0/000
Religious voluntary	Music randomly	-1/33690	0/14159	0/000
Music voluntary	Exercise randomly	0/07745	0/13861	0/588
Music voluntary	Exercise randomly	-0/32108	0/15156	0/038
Music voluntary	Music randomly	-0/45945	0/13861	0/001
Exercise randomly	Religious randomly	-0/39853	0/15751	0/014
Exercise randomly	Music randomly	-0/53690	0/14508	0/000
Religious randomly	Music randomly	-0/13837	0/15429	0/373

As it can be seen in the table 5, there is no significant difference between coronavirus anxiety due to post-test between the three groups of control, random religious performance

and random listening to music, and the dependent t-test among these groups is also significant. However, these groups are not effective in reducing coronavirus anxiety level. Also, the difference between the voluntary music group and the random exercise group is not significant, but given that the dependent t-test of these groups was significant, it is equally effective in reducing the coronary anxiety caused by the treatment staff. The results also show that the other groups are significantly different from each other in pairs, and the voluntary group following religious acts, the voluntary group exercising have the lowest amount of coronavirus anxiety, respectively.

Discussion

This study sought to investigate the effect of exercise and physical activity, following religious beliefs and listening to music on coronavirus anxiety level in the treatment staff in two different modes (voluntary and random). In this regard, the findings showed that the mean score of anxiety caused by coronavirus in the treatment of volunteer groups of sports and physical activity, voluntary following religious beliefs, voluntary listening to music and random group of sports and physical activity significantly decreased in the post-intervention stage. But the anxiety scores of the treatment staff of the random groups practicing religious beliefs and listening to music after the intervention were not significantly different. This indicates that exercise and physical activity, practicing religious beliefs and listening to music, whenever it is according to one's wishes and the person is a member of such groups voluntarily and is willing to do such acts, regardless, the type of exercise he does or the type of music he listens to, reduces anxiety level. However, listening to music and following religious activities has no effect on reducing anxiety if it is not done with the desire and individual tendency, and only exercise and physical activity have reduced the treatment staff anxiety level, which seems to be added. The exercise popularity among different groups is due to the predominance of the physical and physiological dimension of exercise, which causes the secretion of hormones as well as increasing physical fitness and subsequent self-confidence, and this physical fitness and self-confidence reduces the anxiety level of corona virus in medical staff. But according to music and following religious beliefs to have an effect on human moods and and to reduce the anxiety level of coronavirus in medical staff, there is a need for a consistent mental background, because its physiological aspect is very low and it is more effective psychologically. The results of ANOVA and LSD test also

showed that the voluntary group following religious beliefs had the greatest reduction in corona anxiety level in the post-test, which seems to be dependent on the religious structure of society and the high coronavirus mortality rate. In that case, one finds oneself in need of God more than ever, and it is also stated in the Muslim religious book (the Qur'an) that one should be awarded that hearts are calmed only by the remembrance of God. Previous research has also shown that in the Iranian religious community, people react more to anxiety through religious practices. In regard to the effect of following religious beliefs on reducing medical staff anxiety level, it can be said that Iranian society is a religious society, but if a person believes in religion only outwardly due to the atmosphere of society and has not experienced it and his inner belief is weak, he loses the physical and psychological benefits of spirituality. Spirituality has branches such as listening to the recitation of the Qur'an and praying, the experience of which inspires inner faith. But following religious beliefs and inner religious orientation believe that by connecting oneself to an eternal and soothing source and believing in God's justice and creating meaning in life for individuals makes one consider problems as God's providence. On the other hand, practicing religious beliefs greatly reduces the anxiety level associated with situations, because people who believe that they voluntarily follow their religious beliefs, and they only rely on God to make chances, taking control of the uncontrollable, and reduce their negative emotions and feel more peacefully inside. Regarding the effect of exercise and physical activity on reducing anxiety level in the medical staff, it seems that the anti-anxiety effects of exercise can be explained based on various mechanisms, including physiological and psychological. From the physiological point of view, exercise can have anti-anxiety effects by providing the possibility of achieving physical fitness, affecting the level of neurotransmitters, affecting the level of stress hormones and reducing muscle tension by following exercises. From a psychological point of view, exercise can reduce anxiety by increasing the level of activity and physical fitness, followed by increasing self-confidence and a sense of empowerment, because anxiety and stress are caused by lack of self-confidence in people. Regarding the effect of listening to music on reducing the anxiety of the treatment staff, it seems that music reduces the person's feelings of anxiety by distracting the senses and reducing the focus of the person on anxious stimuli. Two separate stimulus in the nervous system at the same time can neutralize the effect of each other, so a person who is focused on listening to music can stimulate other stimuli in the nervous system, neutralizing corona virus anxiety. On the other

hand, listening to music has an inhibitory effect on the sympathetic functions of the central nervous system and has been associated with reducing stress and irritability and improving mood. Because tastes in music vary considerably, listening to your favorite music inwardly exacerbates this effect, but if you do not listen to music out of personal desire, you cannot sense it. In general, it is concluded that personal desire and interest in physical activity, following religious beliefs and listening to music are effectives factors in mental well-being and reducing anxiety in medical staff. This factor is more effective in performing religious acts and listening to music that have a spiritual aspect, but it is less effective in following sports whose physical dimension is dominant. According to the results of the study, it is suggested that the medical staff would reduce anxiety along with exercise and physical activity at home, which is done in full compliance with health protocols, based on their personal desire to follow religious practices or playing your favorite music.

Conclusion

This study, like other interventional studies with all limitations such as low sample size due to the busy work of medical staff during the corona and lack of cooperating some of them during the research process, has restrictions on matching. Due to the lack of sample size, remote and virtual control of the groups, the groups applied independent variables due to social distancing and completed trust in the subjects, which could affect the results of the study. Therefore, it is suggested that these shortcomings be eliminated in further researches.

Competing interests

There is no competing of interest to disclose.

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