

# Comparison of the effect of cognitive-spiritual method of hope therapy and tai chi exercises on anxiety caused by corona disease in university students

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## ABSTRACT

**Background:** According to experts, Stress and anxiety can weaken the immune system and make people vulnerable to diseases such as corona virus. Accordingly, the aim of this study was to compare the effect of Hope Therapy Based on Cognitive-Spiritual Approach and Tai chi Exercises on Anxiety due to Corona Disease in students.

**Materials and Methods:** A Semi-experimental design was conducted (pre-test and post-test) with two experimental and one control groups. 45 female students of the Islamic Azad University of Tabriz who had higher scores on the Corona virus Anxiety Scale (CDAS8) were selected by convenience sampling and randomly divided into two experimental groups (15 people in each group) and one control group (15 people). For the first group, Hope Therapy Based on Cognitive-Spiritual Approach training (10 sessions; Week 2 sessions, one and a half hours) and for the second group, Tai chi Exercises (10 sessions; Week 2 sessions, 30 to 40 minutes) was applied and the control group did not receive any training. Prior and after the training, the subjects completed Corona virus Anxiety Scale Alipour et al. (2020). Analysis of covariance was used to analyze the data.

**Findings:** The results showed that the mean scores of Corona Disease Anxiety and its components (psychological and physical symptoms) reduced significantly in the Hope Therapy Based on Cognitive-Spiritual Approach training group comparison to Tai chi exercises group and in the Tai chi Exercises group comparison to the control group in the post-test ( $P < 0.05$ ). The difference between the three groups in the total score of students' Corona Disease Anxiety and its components (physical and psychological symptoms) are effect amount with 0.74, 0.70 and 0.62, respectively.

**Conclusion:** The results showed that Hope Therapy Based on Cognitive-Spiritual Approach is more effective in reducing corona disease anxiety in female students than Tai chi exercises.

**Keywords:** Hope Therapy Based on Cognitive-Spiritual Approach, Tai Chi Chuan, Anxiety, Corona virus, Students.

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## INTRODUCTION

The global epidemic of the new coronavirus (COVID-19) as a severe acute respiratory syndrome, which has emerged since December 2019, is considered a threat to the health and lives of millions of people around the world.<sup>1</sup> The source and source of infection are mainly patients with Covid 19 virus. The virus can be transmitted from person to person. Prevalence through respiratory tract secretions and contact with surfaces or person-to-person are the most important causes of virus transmission. Airborne particles are also another way of transmitting the virus.<sup>2</sup> The symptoms of the virus vary from mild to severe. Signs and symptoms of coronavirus in patients include fever, cough, difficulty breathing, fatigue and muscle aches, vomiting and diarrhea.<sup>3</sup> The existence of patients with coronavirus in Iran was officially confirmed on February 20, 2017 and immediately endangered mental and physical health.<sup>4</sup>

To date, no successful vaccine or antiviral drug for New Coronavirus 2019 has been clinically validated and available, although studies at home and abroad have begun and are ongoing. Therefore, prevention and control of infection and observance of hygienic principles by the general public is a priority.<sup>5</sup> Studies show that staying indoors, such as at home, due to physical distance and social distance, as well as traffic restrictions, can lead to psychological problems such as loneliness and depression,

failure, anxiety, stress, substance abuse, and alcohol abuse. And low psychological well-being, low quality of life in individuals.<sup>5-8</sup> But the implementation of health policies, despite the positive consequences, has caused negative psychological effects in the community. Fear of illness, fear of death, spreading false news and rumors, interfering with daily activities, travel prohibitions or restrictions, reducing social relationships (co-workers, friends and family), job and financial problems, and dozens of other consequences. These conditions threaten the mental health of people in the community. Undoubtedly, one of the most important factors is anxiety related to coronary heart disease.<sup>9</sup>

Anxiety disorder is a new diagnosis in DMS-5 and includes people who are preoccupied with getting sick or having a disease.<sup>10</sup> Unknown disease and cognitive ambiguity in individuals,<sup>11</sup> lack of definitive treatment,<sup>12</sup> high prevalence as well as high mortality can be the causes of increased anxiety in Covid-19.<sup>13</sup> Stress and anxiety can weaken the immune system and make them vulnerable to diseases such as coronary heart disease.<sup>9</sup> University students are another person prone to developing psychological symptoms during the outbreak of Covid-19 disease. At the beginning of the outbreak of this disease in our dear country Iran, like other countries in the world, the closure of universities was one of the first and most basic measures to prevent the widespread spread of Covid-19

disease. A study of more than 7,000 students in China during the publication of Covid-19 found that they experienced about 24.9% anxiety. About 9% of people reported symptoms of severe anxiety and the rest reported mild anxiety. Among the causes of anxiety among students are concerns about the impact of the Covid-19 virus on their future education, future employment status, reduced social relationships, as well as the incidence of Covid-19 disease in relatives and acquaintances.<sup>14,15</sup>

Accordingly, attention to the student population as a young and future-oriented population of the country, should undoubtedly be considered by health officials and planners, and treatment strategies should be used to deal with anxiety. Researchers believe that cognitive-spiritual training and tai chi chuan exercises are among the therapies that can play a significant role in reducing stress and anxiety<sup>17</sup>.

Cognitive-spiritual hope therapy is hope therapy with cognitive methods (positive thinking and learned optimism) and spiritual therapy. Hope and hope therapy is one of the constructs of positive psychology. Among psychological therapies, Schneider hope therapy is the only treatment that considers hope as the main goal of treatment.<sup>18</sup> This type of psychological intervention is based on Schneider's theory of hope and ideas derived from cognitive-behavioral therapy, solution-oriented therapy and story or narrative therapy.<sup>19</sup>

In this type of treatment, participants are first introduced to the principles of the theory of hope and then taught how to apply these principles in their lives. Participants learn how to set important, achievable, and measurable goals; Identify multiple pathways for moving toward these goals, identify motivational sources and the interaction of each barrier to motivation, review progress toward the goal; And modify targets and passages if necessary.<sup>20</sup> Research has shown that hope is associated with reduced anxiety, depression, stress, coping strategies and suicidal ideation, coping style, and meaning in life.<sup>21-25</sup>

One goal in hope therapy is to adjust the habitual and fruitless ways of approaching previous problematic goals. The therapist alone can not facilitate this flow in clients by using insight and insight. Practice / practice is essential for changing automatic and chronic patterns of thinking, and researchers who have recently worked in the field of optimistic thinking have shown that individuals can change by increasing optimistic thinking.<sup>26</sup> Since fear and stress by stimulating the hypothalamus in the brain and subsequently increasing the secretion of cortisol from the adrenal cortex and stimulating the sympathetic nerves throughout the body in the short term is beneficial for the body to deal with stressors.<sup>27</sup>

However, if this fear and stress and the body's response to increase cortisol levels and sympathetic stimulation persists in the long run, it is destructive and leads to a weakened immune system and reduced ability of the body to fight diseases such as coronary artery disease.<sup>28</sup> Accordingly, researchers have found that positive thinking can help manage stress and anxiety, and can even play an important role in overall health and well-being. However, positive thinking actually means approaching life's challenges with a positive outlook. This does not necessarily mean ignoring or avoiding bad things. Instead, it involves creating the potential for bad

situations.<sup>29</sup> Tabatabai et al.<sup>30</sup> in a study examining the effect of positive thinking training (positive thinking) on optimism and anxiety of 46 University students and concluded that positive thinking training has reduced students' anxiety and increased optimism. Learned optimism is a state in which one learns to have optimistic and pleasant expectations about one's performance and to interpret it optimistically even in the event of unpleasant events.<sup>31</sup>

Also, another study conducted by Tabatabai et al.<sup>32</sup> showed that optimism training has been effective in reducing students' anxiety and depression. On the other hand, the discussion of hope and education of hope therapy can also have a cultural dimension and considering that in Iranian and Islamic society, many of our behaviors in individual and social life are directly or indirectly influenced by religious teachings and beliefs. It is often evaluated with it as well.<sup>33</sup> Therefore, in the present study, spiritual therapy and religious teachings have been used during hope therapy training sessions. Spirituality therapy means considering cultural, religious beliefs and inner connection with a divine absolute power beyond the boundaries of religious tendencies to different religions that lead people to the eternal divine power of God.<sup>34</sup>

Prayer, reading the book of revelation, stories of the prophets and attending religious ceremonies are some of the resources that some religious people can enjoy less stress and anxiety in the face of stressful life events.<sup>35</sup> Ellison et al.<sup>36</sup> conducted a study on a sample of ordinary people and showed that adherence to religious beliefs and belief in concepts such as resurrection has a significant negative correlation with anxiety and a significant positive correlation with calm. In another study, Kozaski et al.<sup>37</sup> showed that the effectiveness of spirituality-based interventions in the treatment of generalized anxiety disorder is very high and causes a significant reduction in anxiety and symptoms of anxiety disorder in patients. Kajbaf et al.<sup>38</sup> showed that spiritual therapy is more effective than metacognitive therapy in reducing anxiety in female students referred to Isfahan University Jihad Center.

Ghobari et al.<sup>39</sup> aimed at explaining the relationship between different dimensions of spirituality with anxiety and depression in 304 students of Tehran University and concluded that between the level of anxiety and the dimensions of spirituality (meaning in life and relationship with God) Negative correlation and positive correlation between depression and anxiety and students' negative experiences in spirituality. There was also a negative correlation between the rate of depression, meaning in life, relationship with God and spiritual flourishing in students.

On the other hand, one of the most important, simplest and least expensive therapeutic approaches is physical activity and exercise. With the widespread spread of the coronavirus (Covid-19) around the world, this concern has been raised about physical activity and exercise. Healthy and asymptomatic people can continue moderate-intensity exercise and benefit from the resulting immune function by following health guidelines.<sup>40</sup>

Among the types of complementary medicine, mental-physical therapies include yoga, tai chi and qigong.<sup>41</sup> Tai Chi is an ancient Chinese martial art that is performed with

controlled controlled movements, slow deep breathing, and correct posture with concentration.<sup>42</sup> Taichi Chuan forms vary in the number of postures, some less than 18 postures and some more than 100 postures, many of which are named after nature (such as shaking hands in a cloud, grabbing a bird's tail, detaching Horse mane and ...). The movements are cyclical and rhythmic, and each state slowly becomes the next state of the form.<sup>43</sup> This exercise can be considered an activity with a low level of difficulty. Its average intensity is 1/3 Met.<sup>44</sup> This set of slow and fluid movements, which is known for its beauty, dignity and calming effects, can bring peace and health by training and cultivating the body and mind as a cohesive and integrated unit. The key to balance and harmony in Tai Chi is to establish stillness in the form of movement. Emptying the mind of thoughts that cause imbalance and tension and finding the inner essence (individual truth) gives the person unity.<sup>45</sup>

Song et al.<sup>46</sup> investigated the effect of tai chi exercise on physical and mental health of elderly people with anxiety disorders. They found that older people with anxiety disorders were treated faster with tai chi exercise. Kabiri Dinani et al.<sup>47</sup> examined the effect of tai chi exercise on stress, anxiety, depression and self-esteem of 46 nursing students and concluded that tai chi exercises with a significant increase in students' self-confidence had a significant effect on Reduced students' stress, anxiety and depression. Zheng et al.<sup>48</sup> found that Taichi can enhance the physical and mental health of students. In another study of students in higher education, Webster et al.<sup>49</sup> showed that tai chi exercises had a significant effect on physical health (increased flexibility, improved lung capacity, balance, running 800,000 meters) and mental health (reduced depressive symptoms, anxiety). (Fear and hostility and improve interpersonal sensitivity, sleep quality).

Since Quid-19 has also spread in Iran and has rapidly endangered the physical and mental health of all people, especially students, staying at home and limiting social and economic activity in the long run has caused distress and panic to all people and has affected the psychological dimensions (coping strategies, quality of life, mental health, etc.). On the other hand, health does not only mean that there is no disease, creating mental health for members of society is one of the most important tasks that every culture creates for its community and seeks to achieve it fully. Considering the importance of mental health and reducing psychological problems (anxiety, stress and depression), the student population as a young and promising population of the country, as positive aspects of mental health and despite the research gap and lack of empirical research in this field, corona conditions, without a doubt, this issue should be considered by officials and mental health planners of the country and medical measures should be taken in this regard. Therefore, the aim of this study was to compare the effect of cognitive-spiritual method of hope therapy and tai chi exercises on anxiety caused by coronary heart disease in students.

## **MATERIALS AND METHODS**

The method of the present study was quasi-experimental (pre-test-post-test) using two experimental groups and one

control group. The statistical population of the present study is all female students of the Islamic Azad University of Tabriz in the academic year 1399-1400 in the number of 13000. The sample of the study was 45 female students are selected using available sampling method and randomly in two groups. Hope therapy is performed cognitively-spiritually and Taichi exercises (15 people in each group) and a control group (15 people).

Anxiety due to corona disease in female students was diagnosed by a clinical psychologist at the Islamic Azad University of Tabriz Counseling Center based on a structured clinical interview. Criteria for entering the group were: 1: age range 20 to 35 years; 2: has higher scores on the Coronavirus Anxiety Scale (CDAS8); 3: Absence of physical disability; 4: Do not use psychiatric drugs; 5: Conscious and voluntary satisfaction of participating in meetings and criteria for leaving the present study: 1: not attending meetings for more than one session; 2: The occurrence of a specific problem during the study was considered. It should be noted that every 45 female students who meet the inclusion criteria according to their place of residence to health centers in Tabriz who have a file to refer and based on the diagnosis of internal medicine (blood test) of coronary heart disease and its symptoms, including disorders They had no fever, runny nose, dry cough, dizziness, sore throat and body aches, fever

After receiving the license from the Islamic Azad University of Tabriz, coordination with the authorities and obtaining informed consent from the female students, it was decided that the selected students (it should be noted that first the coronavirus anxiety scale was designed online on the university website and available to all female students Azad University was located. People who wished to complete the questionnaire and among them (about 600 people), students who met the inclusion criteria and were invited to cooperate with the university if they consented) at the appointed time in the amphitheater of the Islamic Azad University Tabriz, which had the necessary facilities, including proper ventilation, computer, video projector, etc., to be present.

After the presence of 45 female students (performing a thermometer at the entrance of the university to check people's body temperature was used as a screenser and the use of health alcohol to disinfect the hands and provide a mask to each subject and observe social distance as a health protocol in this study. The researcher communicated with the participants, answered the students' questions, and explained how to complete the questionnaires. After performing the pretest (Corona Virus Anxiety Scale), an agreement was reached on the date of the next sessions and 45 female students were randomly assigned to be included in 2 groups of 15 experimental groups (group 1: cognitive-spiritual hope therapy and group 2: tai chi exercises and a group of controls were divided).

After selecting the test groups, in the introductory session of the experimental groups, he gave a summary of the goals and methods of teaching hope therapy in a cognitive-spiritual way and tai chi exercises for the experimental groups. Questioning Students made sure they were not under another educational or medical program. Students in Experiment 1 received group cognitive-spiritual hope therapy in sessions (10 sessions; 2 weeks, one and a

half hour sessions) and students in Experiment 2 received training in tai chi exercises (10 sessions: two sessions of 30 to 40 minutes per week). And the control group did not receive training.

In cognitive-spiritual training sessions, educational materials were presented in PowerPoint format with pictures and homework related to each session was presented to the participants. In the next sessions, homework was reviewed and tai chi exercises were performed in the university gymnasium (on a soft mattress for each subject) in accordance with the health protocol. At the end of the training sessions, post-test (coronavirus anxiety scale) was measured in all 3 groups (2 experimental groups and one control group). It should be noted that in order to comply with the ethical principles of the research, after all 3 groups of post-test (Corona Virus Anxiety Scale) were performed, the mentioned trainings were designed virtually for the fourth corona wave and maintaining the health of female students and sent to the control group.

**The following tools have been used to collect information:** Corona Disease Anxiety Scale (CDAS8): This tool has been developed and validated by Alipour et al. [9] to measure anxiety caused by the spread of corona virus in Iran. The final version of this tool has 83 items and 2 components (agents). Items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical symptoms. The instrument is rated in a 4-point Likert scale (never = 0, sometimes = 1, most of the time = 2 and always = 3); Therefore, the highest and lowest scores that the respondents get in this questionnaire are between 0 and 54. High scores in this questionnaire indicate a higher level of anxiety in individuals. The reliability of this tool was obtained using Cronbach's alpha method for the first factor

( $\alpha = 0.879$ ), for the second factor ( $\alpha = 0.861$ ) and for the whole questionnaire ( $\alpha = 0.919$ ). Also, the value of Guttman- $\lambda$  was obtained for the first factor ( $\lambda = 2 - 0.882$ ), the second factor ( $\lambda = 2 - 0.864$ ) and for the whole questionnaire ( $\lambda = 2.992$ ). To evaluate the correlation-dependent validity of this questionnaire, correlation of this instrument with GHQ-28 questionnaire was used. The results showed that the corona anxiety questionnaire with the total score of GHQ-28 questionnaire and the components of anxiety, physical symptoms, social dysfunction and depression were equal to 0.483, 0.507, 0.418, 0.333 and 0.269 and all these coefficients were significant at the level of 0.01.

**Intervention methods:** Cognitive-spiritual hope therapy: For the first group, the protocol of cognitive-spiritual hope therapy was taught in 10 sessions and each session for an hour and a half. This treatment method was developed by Geravand et al.<sup>16</sup> and its effectiveness on anxiety, anxiety and stress has been confirmed.

**Taichi Exercises:** The total duration of the exercises was 10 sessions, two sessions per week and each session lasted 30 to 40 minutes. The tai chi practice consisted of soft, slow meditation movements performed in conjunction with tai chi music, adapted from his book Tai Chi Essence by San Liao,<sup>50</sup> and shown in Figure 1. The method of performing these movements is as follows.

7 to 10 minutes of general warm-up, tai chi movements performed on almost all body surfaces, accompanied by squatting, pulling arms in different directions, foot movements in straight anterior and posterior directions, back movement, and head rotation with vision (Eye movement), cooling for 7 to 10 minutes.

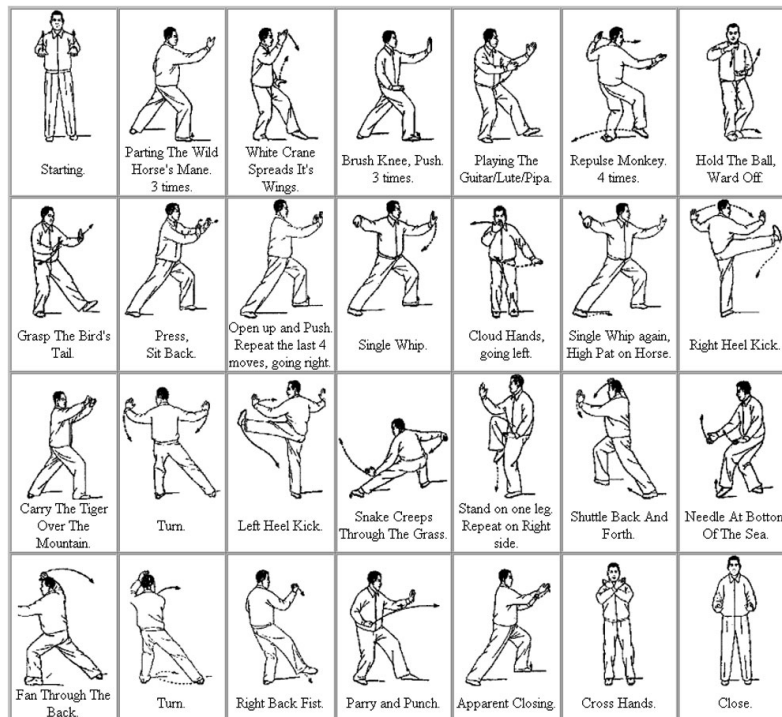


Figure 1. Tai Chi movements performed in the training protocol

**Data analysis:** Data were analyzed using SPSS-22 software. In the data description section of the mean and standard deviation and in the inferential section of the univariate and multivariate analysis of covariance analysis with the assumptions of normal distribution of scores through Shapiro-Wilk test, the assumption of homogeneity of regression slope using the interaction effect with group and test. The variance of the dependent variable was used in the groups and in multivariate analysis of covariance, Levin test was used to homogenize the variance matrix of covariance.

**RESULTS**

Table 1 presents descriptive findings (mean and standard deviation) related to coronary anxiety scores and its components (psychological and physical symptoms) before and after training for research groups.

To compare the effect of cognitive-spiritual hope therapy and tai chi exercises on anxiety due to coronary artery disease in students from univariate analysis of covariance and to compare the effect of cognitive-spiritual hope therapy and tai chi exercises on anxiety components

(components) Multivariate covariance was used. It should be noted that before presenting and reviewing the results of tests related to the analysis of research hypothesis, first the test of assumptions of analysis of covariance was performed. Important assumptions of analysis of covariance include the normality of the dependent variable distribution, the homogeneity of the regression slope, and the homogeneity of the variance variance error in the groups. In multivariate analysis of covariance, the homogeneity of the variance-covariance matrix is also added.

Shapiro-Wilk test was used to evaluate the normality of score distribution. The results showed that all variables in both pre-test and post-test in the three groups followed the normal distribution ( $p < 0.05$ ) (Table 2).

The hypothesis of homogeneity of the regression slope was investigated using the interaction of group \* pretest. The results showed that the homogeneity assumption of the regression slope for coronary anxiety and its components (psychological and physical symptoms) is established ( $p < 0.05$ ) (Table 3).

Table 1. Descriptive characteristics of coronary anxiety variable and its components in the sample in the group of hope therapy, tai chi exercises and control in pre-test and post-test

Variable	Group	Pre-test		post-test		Adjusted Mean
		M	Std. dev	M	Std. dev	
Corona Anxiety	Hope Therapy	36.80	5.21	31.67	4.76	31.90
	Tai Chi exercises	37.20	5.60	33.73	5.18	33.59
	Control	37.13	5.13	36.27	5.31	36.18
Psychiatric symptoms	Hope Therapy	18.73	3.69	16.13	3.31	16.01
	Tai Chi exercises	18.40	3.60	16.87	3.44	17.02
	Control	18.60	3.62	18.20	3.67	18.18
Physical symptoms	Hope Therapy	18.07	3.52	15.53	2.97	15.87
	Tai Chi exercises	18.80	3.61	16.87	3.00	16.59
	Control	18.53	3.62	18.07	3.37	18.01

Table 2. Evaluation of the normality of corona anxiety distribution data and its components using Shapiro-Wilk test

Variable	Group	Pre-test		post-test	
		Shapiro Wilk	P	Shapiro Wilk	P
Corona Anxiety	Hope Therapy	0.950	0.517	0.937	0.351
	Tai Chi exercises	0.958	0.658	0.954	0.586
	Control	0.981	0.973	0.981	0.976
Psychiatric symptoms	Hope Therapy	0.986	0.823	0.964	0.765
	Tai Chi exercises	0.967	0.813	0.964	0.765
	Control	0.970	0.856	0.981	0.979
Physical symptoms	Hope Therapy	0.947	0.478	0.956	0.617
	Tai Chi exercises	0.964	0.767	0.951	0.546
	Control	0.965	0.773	0.970	0.852

Table 3. Results of the assumption of homogeneity of regression slope for corona anxiety and its components in the studied groups

Variable	Source of change	Sum of squares	df	Mean squares	F	P
Corona Anxiety	Effect of group * Pre-test	4.147	2	2.074	1.832	0.174
	Error	44.151	39	1.132		
Psychiatric symptoms	Effect of group * Pre-test	1.55	2	0.775	1.445	0.249
	Error	19.309	36	0.775		
Physical symptoms	Effect of group * Pre-test	1.183	2	0.591	1.527	0.231
	Error	13.938	36	0.387		

Table 4. Box test results to investigate the homogeneity of the variance-covariance matrix of coronary anxiety components

Value of M box	Value of F	Df1	Df2	P
0.71	0.11	6	43964.31	0.995

Table 5. Levin test results for equalization of corona anxiety variance error and its components in the studied groups

Variable	F	Df1	Df2	P
Corona anxiety	0.799	2	42	0.457
Psychiatric symptoms	0.163	2	42	0.85
Physical symptoms	0.354	2	42	0.704

Table 6. Results of Significance Test of Multivariate Analysis of Covariance (MANCOVA) for Corona Anxiety Components in Study Groups

Test name	Test value	F	df Hypothesis	df Error	P	Eta
Lambda Wilkes	0.237	20.588	4	78	0.001	0.514

Table 7. Results of analysis of covariance to compare coronary anxiety and its components in post-test in the study groups

Source of variable	Dependent variable	Sum of Squares	df	Mean Squares	F	P	Eta
Effect of group	Corona anxiety	39.869	2	69.935	59.368	0.001	0.743
	Psychiatric symptoms	35.252	2	17.626	32.9	0.001	0.622
	Physical symptoms	35.585	2	17.792	45.924	0.001	0.697
Effect of Error	Corona anxiety	48.298	41	1.178			
	Psychiatric symptoms	21.43	40	0.536			
	Physical symptoms	15.497	40	0.387			

Table 8. Results of LSD post hoc test for pairwise comparisons of corona anxiety disorder and its components in the study groups

Variables	Comparison	The average difference	Criteria error	P
Corona Anxiety	Hope therapy- Tai Chi exercises	-1.692	0.397	0.001
	Hope therapy - Control	-4.288	0.396	0.001
	Tai Chi exercises -Control	-2.596	0.396	0.001
Psychiatric symptoms	Hope therapy - Tai Chi exercises	-1.01	0.269	0.011
	Hope therapy - Control	-2.17	0.268	0.001
	Tai Chi exercises -Control	-1.159	0.267	0.001
Physical symptoms Corona	Hope therapy - Tai Chi exercises	-7.26	0.228	0.011
	Hope therapy - Control	-2.143	0.228	0.001
	Tai Chi exercises -Control	-1.417	0.417	0.001

The results of the m-box test indicate that the assumption of homogeneity of the variance-covariance matrix of the components of coronary anxiety (psychological and physical symptoms) is also established ( $p < 0.05$ ) (Table 4).

Also, the assumption of homogeneity of variance error of dependent variables in the groups was investigated using Levin test (Table 5). The results show that the variance error of coronary anxiety and its components (psychological and physical symptoms) is not significantly different in the three groups ( $p < 0.05$ ). Therefore, all the assumptions of univariate analysis of covariance and multivariate analysis of covariance are valid.

Univariate analysis of covariance was used to compare the effect of hope therapy with cognitive-spiritual method and tai chi exercises on anxiety caused by coronary heart disease in students. The results of univariate analysis of covariance showed that by adjusting the pre-test scores, the total score of coronary anxiety in students in the cognitive-spiritual hope group, tai chi exercises and control were significantly different ( $p = 0.001$ ,  $F = 59.37$ ). The intensity of the effect is equal to 0.74 (Table 7).

Multivariate analysis of covariance was used to compare the effect of cognitive-spiritual hope therapy and tai chi exercises on the components of anxiety due to coronary heart disease in students. In this analysis, first, the general multivariate variable, which consists of components, is compared between the two groups, and then univariate tests are performed. The Wilkes lambda approach was used for multivariate comparison. The value of Wilkes lambda is equal to 0.24, the value of F is equal to

20.59 and the significance level is equal to 0.001. Due to the smaller level of significance from 0.05, it is concluded that at least one of the components of coronary anxiety in the study groups is significantly different (Table 6).

The results of univariate comparisons indicate that the rate of psychological symptoms of coronary anxiety in students in the group of hope therapy in a cognitive-spiritual way, tai chi exercises and control is significantly different ( $p = 0.001$ ,  $F = 32.90$ ). The intensity of the effect is equal to 0.62. Also, there is a significant difference in the physical symptoms of coronary anxiety in students in the group of hope therapy in cognitive-spiritual method, tai chi exercises and control ( $p = 0.001$ ,  $F = 45.92$ ). The intensity of the effect is equal to 0.70 (Table 7).

Based on the results of LSD post hoc test, it is observed that the mean scores of coronary anxiety in students and its components (mental and physical symptoms) in the cognitive-spiritual hope training group compared to the control group and tai chi training group; Also, in the tai chi training group, it decreased significantly compared to the control group (Table 8).

## DISCUSSION

The aim of this study was to compare the effect of cognitive-spiritual method of hope therapy and tai chi exercises on reducing corona disease anxiety in students. The results of analysis of covariance showed that the total score of corona anxiety and its components (psychological and physical symptoms) in female students, The hope therapy group was significantly reduced cognitively-spiritually compared to the taichi training group and in the taichi training group compared to the control group in the

post-test. The difference between the three groups in the total score of corona anxiety and its components (physical and mental symptoms) in students with effect sizes of 0.74, 0.70 and 0.62, respectively.

There has been no report in the research literature on comparing the effectiveness of these trainings on reducing corona disease anxiety in female students; However, the results obtained with the results of Rahimpour Anaraki,<sup>21</sup> Mirbagher Ajrpez et al.,<sup>22</sup> Dashtianeh et al.<sup>26</sup> that hope therapy has been effective in reducing depression, anxiety and stress and also with the results of studies by Tabatabai et al.<sup>30,32</sup> which stated that positive thinking training (positive thinking and optimism) has helped to reduce students' anxiety is consistent.

It is also consistent with the findings of Ellison et al.,<sup>36</sup> Koszycki et al.,<sup>37</sup> Kajbaf et al.,<sup>38</sup> and Ghobari et al.<sup>39</sup> that spirituality interventions have played a significant role in reducing students' anxiety. On the other hand, with the results of the studies of Song et al.,<sup>46</sup> Khasali et al.,<sup>17</sup> Kabiri et al.,<sup>47</sup> Zheng et al.<sup>48</sup> and Webster et al.,<sup>49</sup> that Taichi exercises play an important role in health, physically and mentally reducing anxiety, stress and depression in students and older women.

The recent outbreak of the new coronavirus (Covid-19) has caused a great deal of stress and anxiety worldwide. Anxiety, response to events or perceived threatening or real situations can occur in a variety of ways, including loss of appetite, dizziness, sleep disturbance, nausea and vomiting, and cognitive impairment.<sup>51</sup> These symptoms can range from relatively non-threatening to very harmful manifestations.<sup>52</sup> Therefore, in the current high-risk situation, identifying people prone to psychological disorders and coronary anxiety at different levels of society, especially young people who are the main assets of any country whose mental health may be endangered is essential to appropriate psychological strategies and techniques to achieve health. Maintains the psyche of people and reduces the amount of anxiety that has developed in them following the outbreak of Covid-19.<sup>53</sup>

According to research, one of the influential factors in stress and anxiety is religion and religious beliefs, because religion affects a person's attitude, cognition and behavior.<sup>54</sup> Believing that there is a God who controls situations and oversees servants greatly reduces situation-related anxiety; As most believers believe, the effect of uncontrollable situations can be controlled by relying on God. Also, people who are at a higher level in terms of religion solve their problems with a problem-solving method and with social support.<sup>55</sup> The physiology of the body also manifests the results of anxiety by stimulating the sympathetic system with different intensities. The sympathetic nervous system increases heart rate and muscle blood flow in hazardous conditions, while reducing blood flow to the skin and gastrointestinal tract.<sup>55</sup>

In fact, praying, supplicating, chanting and engaging in spiritual activities through the cortical centers of the brain and their interaction with the centers of the thalamus and hypothalamus glands find emotional meaning and color. On the other hand, these centers are connected to the pituitary gland, which regulates the activity of other glands. Also, engaging in religious activities has a positive effect on the body's defense mechanism, such as antibodies, increasing

the body's resistance to chronic physical and mental illnesses.<sup>57</sup> Hope has several biological correlations, including: effective function of neurotransmitters, serotonin and adrenaline, effective immune function, increased GABAergic neurotransmitter bonding and inhibition of stressful event recall, increased oxytocin and endogenous opioids.<sup>58</sup>

Therefore, it can be said that hopeful people have more passages to pursue their goals. When they encounter an obstacle, they can stay motivated and use alternate passages. But named people easily lose their motivation and get negative emotions in dealing with obstacles because they have few agents and passages. How to control and act on anxiety is directly related to how a person views hope therapy, anxiety and stress. Hope can be effective if a person in his philosophical framework and views is willing to accept change and its impact on various aspects of life if this is accepted over time.

Therefore, life expectancy and happiness lead to recovery and health and relieve stress, and according to a negative view, the sick person becomes more ill and life expectancy decreases. In the positive view, the person considers himself victorious, successful, valuable, rich and acceptable, and in the negative view, the person considers himself constantly defeated, weak, poor and rejected, and the same mental pattern will live [26]. In general, hope therapy in the form of creating hopeful thinking and will towards life and overcoming problems and its destructive effects on living standards leads to increased happiness and reduced negative emotions in students.

Accordingly, Silgman et al.<sup>59</sup> believes that in teaching positive thinking (positive thinking) students are encouraged to recognize their positive and good experiences and recognize their role in increasing and promoting self-esteem, self-esteem and reducing anxiety, and at the same time Gain the ability to recognize the positive aspects of others. Silgman also acknowledges about optimism that "optimism is learnable" if we learn that in the face of unpleasant events, the external attribution style is specific and transient, and in the face of pleasant events, the internal attribution style is general and permanent. Silgman et al.<sup>59</sup> found that teaching change in attribution style reduces the symptoms of depression and anxiety in individuals. In the present study, hope in the cognitive-spiritual method has an important effect on adapting to the corona crisis and the resulting psychological problems because the most important effect of this method can be considered in changing the attitude and interpretation of difficult life events. Changes in beliefs affect a person's cognitive assessments and manage negative events and the resulting stress in a rational way, and students achieve a stronger sense of security with hope, optimism, and positive thinking through connection to God and spiritual resources. Their ability to adapt to the problems of life during the coronation period increases more efficiently, which reduces the stress and anxiety of students.

On the other hand, Morgan & Baherk<sup>60</sup> psychological model assumes that sports activities act as a distraction factor or a factor that releases stressful stimuli and emotions, which can lead to psychological improvement. Taichi exercise is expected to be one of the complementary

medicine methods and as a non-pharmacological and low-complication treatment that does not require special equipment; Used in conjunction with other common therapies to reduce anxiety in these critical coronary conditions. Studies show that tai chi exercise relaxes and reduces the stimulation of the sympathetic system and improves immune function. Also, electroencephalographic (EEG) studies of participants who underwent Physical training showed an increase in alpha, beta, and theta activity, indicating an increase in relaxation and attention.<sup>61,62</sup>

The stress response is the body's short-term survival state that provides the defense mechanisms to deal with an emergency. In this case, blood flows from the internal organs of the body to the muscles and becomes more concentrated so that the amount of blood lost from the body at the time of injury decreases and the body's hormonal level increases and thus the metabolism reaches its maximum. At this time, the number of heartbeats increases. These reactions are the opposite of the body's reactions in a relaxed state. Practicing tai chi is not only a means of converting the stress response into a relaxation response during the practical execution of the movements, but also teaches the body to relieve the tension of the muscles so that it can more easily get out of the stress response. Breathing exercises can also help keep the lungs healthy and improve blood flow to the body. Slowness and softness in tai chi exercises increase mental concentration, which in turn helps to control a person's nervous system in critical situations and stress. In fact, if the exercise is properly learned and done regularly, it can have a positive approach to improving the overall health of people, which can lead to some things such as reducing stress and anxiety, increasing the body's aerobic capacity, increasing flexibility, balance and agility. Increase muscle strength, improve sleep quality, increase immune system, lower cholesterol and blood pressure, improve joint pain, improve symptoms of heart failure improve overall health in people.<sup>63</sup>

Since previous studies have only examined the psychological consequences of coronavirus among individuals and the existence of a research gap in the field of psychological interventions in the field of mental health in individuals with coronary heart disease has not been done. Therefore, in the present study, by examining the effect of tai chi exercises and hope therapy in a cognitive-spiritual manner, in fact, the physical and psychological dimensions of the effect on anxiety caused by coronary heart disease in students have been combined as the strength of this study. One of the limitations of the present study is that it is homosexual and it is not possible to implement follow-up programs in order to pursue effectiveness over time.

## CONCLUSION

In general, it can be concluded that cognitive-spiritual hope therapy is more effective in reducing coronary anxiety and its components (psychological and physical symptoms) in female students than tai chi exercises. According to the results of this study and its confirmation through previous research, the use of a combined program of hope therapy training in a cognitive-spiritual manner along with tai chi exercises by observing the health protocol in person or in

corona waves virtually through mass media and systems. Counseling is suggested as an effective program to promote mental health (reduce anxiety, depression, stress) of individuals, especially students, should be considered by community health officials.

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