LUPINE PUBLISHERS

Open Access Journal of Complementary & Alternative Medicine

DOI: 10.32474/OAJCAM.2021.03.000159

ISSN: 2644-1217

Research Article

A Control Study of Calligraphy Training Plus Drug Treatment in The Intervention of Anxiety Disorder

Henry SR Kao[1]*, Xingping Dong[2], Jimin Jia[2], Jun Wang[2], Zhonglan Cui[2], Rongxing Zhang[2]

[1]*Department of Psychology, University of Hong Kong, Hong Kong*

[2]*Binzhou People's General Hospital, Binzhou, China*

***Corresponding author:** Henry SR Kao, Department of Psychology, University of Hong Kong, Hong Kong

Abstract

Background: Chinese calligraphy handwriting (CCH) enhances one's cognitive, emotional, and physiological functions. Its applications have shown effective improvements in psychological, psychosomatic, behavioral, and clinical disorders, including anxiety symptoms associated with neurosis, depression, schizophrenia, and cancers.

Objectives: We tested the effects of a combined CCH plus Venlafaxine training as a new treatment method, which involved the use of anti-anxiety drugs together with CCH training for a new system of behavioral intervention.

Methods: 60 patients meeting the criterion of CCMD-3 for anxiety disorder were assigned randomly to the Exp Group (N-31) or the Control Group (N-29) for an eight-week protocol. The Exp Group was given both Venlafaxine and the CCH training, whereas the Control Group received only Venlafaxine. Effects were evaluated with the Hamilton Anxiety Scale (HAMA), Self-Rating Anxiety Scale (SAS), and Clinical Global Impression Scale (CGI) before and after 2, 4, 8 weeks of treatment, respectively.

Results: The Total Scores of HAMA, SAS, CGI in the Exp Group showed significant improvements after 4 and 8-weeks of the treatment ($p<.05$). All Pre-Post t-tests for the Exp Group in all three measures reached $P<0.01$ level, whereas those for the Control Group reached $P<0.05$ level of significance, both after the 8th week. postt-tests after the 4th week showed $P<0.05$ for the Exp Group, but not for the Control Group in any of the measures.

Conclusion: Treatment by CCH plus Venlafaxine resulted in better effects than using only Venlafaxine for anxiety disorders. The combined drug and CCH intervention offers effective clinical outcomes

Received: June 25, 2021 **Published:** July 13, 2021

Background

Anxiety disorder, i.e., anxiety neurosis, includes generalized anxiety disorder, panic disorder, social anxiety disorder (social phobia), and various phobia-related disorders. One can have more than one anxiety disorder. Sometimes anxiety results from a medical condition that needs treatment. Anxiety disorders are generally treated with cognitive behavior therapy (CBT), anti-anxiety medication as well as stress management techniques, including meditation and biofeedback. Several Chinese medical practices of acupuncture, Qigong, Taiqi and calligraphy training have shown positive effects on anxiety and depression Xu, et.al. [1]. Chinese calligraphy handwriting (CCH) enhances one's cognitive, emotional, and physiological functions Kao, [2,3]. Its applications in behavioral, psychosomatic, and cognitive disorders have shown positive improvements, including anxiety symptoms in patients with schizophrenia Fan, et.al. [4]. neurosis Kao, et.al. [5]. and depression Kao, et.al. [6]. and PTSD Zhu, et. al. [7]. In addition, similar states of anxiety and profiles of moods have also been investigated on patients with breast cancer Liu, et.al. [8], Nasopharyngeal Carcinoma cancer Yang, et.al. [9]. as well as conditions of depression associated with cancer patients in a scoping review Wagner, et.al. [10] A recent study of World Health Organization (WHO) has identified and praised our CCH therapy as an effective treatment of stress and anxiety conditions and behavioral change of the childhood survivors of the massive 2018 Sichuan Earthquakes Foucourt et.al. [11].

Above all, a series of brain imaging studies have provided encouraging evidence of the CCH's varied training effects and influences on the practitioner from a fundamental neuroscience perspective. One study using fMRI technique has found that long-term CCH training may be associated with improvements in specific aspects of executive functions and strengthened neural networks in related brain regions Chen W, et.al. [12]. Another recent VBM study suggested that CCH training may improve attention and influence brain structures through mental processes such as meditation Chen W, et.al. [13]. These research studies provided theoretical support to the clinical effects of calligraphy training for

clinical application in the present study. No direct comparisons on treatment effects between calligraphy training and drug treatment have been attempted in the past dealing with any psycho-emotional disorders. Thus, the present study explored the therapeutic effects of calligraphy training plus Venlafaxine on patients with anxiety disorder, testing the efficacy of both the anti-anxiety drug and a calligraphy-based behavioral intervention.

Method

Participants

Sixty patients who met the criterion of CCMD-3 for anxiety disorder participated in the study. They were outpatients or inpatients of Binzhou Mental Health Center from March 2003 to March 2005. All of them had a HAMA (Hamilton Anxiety Scale) score not lower than fifteen and an SAS (Self-Rating Anxiety Scale) score not lower than fifty. They had neither serious physical diseases nor serious suicidal tendencies. Participants were assigned randomly to experimental group or control group treatment based on their visit consequence. The study group was given venlafaxine in addition to calligraphy training while the control group was given venlafaxine only. In the experimental group, there were 31 patients with an average age of 32.4±7.8 years and an average span of disease 15.4 ±12.8 months, with 13 male and 18 female, 10 outpatients and 21 inpatients. Another 29 patients were in the control group, consisting of 14 male and 15 female, 9 outpatients and 20 inpatients. The average age was 30.5±8.6 years and the average span of disease was 16.4±10.7 months. Patients in both groups had educational levels above junior secondary school. Comparisons of the two groups based on any aspect mentioned above attain no significance both for the Chi-square test and for the T-test (p >.05).

Procedure

Drug therapy: After a two-week washout period, all the participants were given venlafaxine, with a dose of 50 mg/d at the beginning and adding to 200-250 mg/d within 2-3 weeks accordingly. The medicine was taken fifteen minutes after breakfast and after supper. Calligraphy training: In addition to the Venlafaxine, patients in the experimental group had calligraphy training five times a week for a period of eight weeks, for two hours per session. Calligraphy training was explained and directed by two disciplined psychiatrists and two nurses in the Handwriting and Painting Room, to ensure that the participants understood the training objectives, meanings, and the operation methods as well. Participants were asked to write characters of varying levels of difficulty. For the inpatients, we examined and kept track of their training completion status as well as their emotional regulation. For the outpatients, we did not offer any instructions at any time, so we gave them calligraphic assignments according to their actual situation, asking them to perform calligraphy handwriting for two hours every day and have subsequent visit every week. We asked about their disease progress in the past week and regularly evaluated their calligraphic writing and shared the experience of calligraphic handwriting. During the process of calligraphic writing, the participants established consciousness of self-control and relieved anxiety emotion by developing an interest in calligraphy.

Treatment Evaluation HAMA, SAS and CGI (Zhang, 2001) were used as indications in the evaluation of treatment effects, and they were evaluated by two associate chief physicians (the Kappa test for consistency equals to .89). Participants were administered these tests before treatment and 2, 4, 8 weeks after the beginning of the treatment. Three patients in the experimental group and two patients in the control group dropped out, and their absence did not cast influence on the statistical results for either the experimental or control group. Clinical effects were assessed in four grades according to the HAMA score-reduction rate: >75% -clinical recovery; 50%-75% -significant progress; 25%-49%-improve; <25%- no effect (Zhou & He, 2005). The first three grades were marked effective.

Results

The comparisons of clinical effects of CCH treatment between the experimental group and control group are provided in the Table 1 below. Results showed that the effective rates of 2-, 4-, and 8-weeks' treatment in the experimental group were 28.5%, 57.1% and 71.4% respectively while corresponding rates were 14.8%, 29.6% and 44.4% in the control group. Chi-square test showed the differences of the two groups were significant, indicating calligraphy training plus Venlafaxine was more effective than merely venlafaxine therapy in the treatment of anxiety disorder. The comparisons between pre-and post- CCH treatment effects in HAMA, SAS and CGI of the two groups are given below. Results indicate that pre-treatment comparisons of the two groups in HAMA, SAS and CGI-SI were non-significant (p>. 05). After 4-week and 8-week treatments, HAMA, SAS and CGI-SI scores in experimental group decreased significantly compared with those of pre-treatment (p<.05 or p<.01); in the control group, the drug therapy only took effect after an 8-week treatment (p<.05). Between-group comparisons of 4-week and 8-week post-treatment tests also showed significant differences between experimental group and control group. These results demonstrated a more rapid and greater improvement when the patients also proceed with calligraphy training besides anti-anxiety drugs treatment.

Table 1: comparison within group [a] $p<.05$, [b] $p<.01$; Comparisons between groups [c] $p<.05$.

Group		2 week	4 week	8 week
Experimental	Effective	8 (28.5)	16 (57.1) [a]	20 (71.4) [b, c]
(n = 28)	Ineffective	20 (71.5)	12 (42.9)	8 (28.6)
Control	Effective	4 (14.8)	8 (29.6) [c]	12 (44.4) [a, c]
(n = 27)	Ineffective	23 (85.2)	19 (70.4)	15 (55.6)

Discussion

Long-term calligraphy training brings practitioners into a composed, stable, and tranquil state, helping them to relieve from anxiety and emotional tension and to maintain physical and mental health Kao, [1]. Abundant evidence has showed that calligraphy handwriting has positive effects in assisting our brain in achieving a state of intense concentration, in regulating our emotions as well as antagonistic system Kao et.al. [3]. When performing calligraphy, practitioners are concentrated in performing control writing activities and try to reduce influence from environment so that they can easily enter a state of tranquility and relaxation. Such a stable and relaxed states enable anxiety patients to reduce the bias of attention which makes them selectively pay attention to those closed to depressed emotion. This is a diversion of attention, helping the anxiety patients to focus less on things that lead to fears and anxiety Kao,[14]. There are studies investigating the relation between calligraphy practice and emotional response. They have provided firm evidence to show effects of calligraphy in helping practitioners to regulate their emotion by changing and adjusting their respiration, heart rate and blood pressure Kao,[13]. Huang and his colleagues Kao,[13]. found that there were significant differences between people with calligraphy experience and those without in terms of self-report symptom inventory, and those with long-term calligraphic experience possessed better mental health. Additionally, calligraphy practice has obviously positive effects in fear reaction Luo, et.al. [15]. Luo et al [14] found that under intense working environments, practicing calligraphy for half an hour every day for one month can reduce positive symptoms, relive emotional tension, and help to regulate emotion [Table 2].

Table 2: comparison with pre-treatment, [a] $p<.05$, [b] $p<.01$; Comparisons between groups [c] $p<.05$.

Test	group	N	Pre-treatment	Post-treatment		
				2 week	4 week	8 week
HAMA	Control	27	29.03±7.65	26.16±7.58	21.06±8.75	14.58±8.65 [a]
	Experimental	28	30.02±6.53	24.56±6.57	17.68±7.49 [a, c]	10.86±6.98 [b,c]
SAS	Control	27	59.05±7.23	55.78±8.96	43.67±9.79	29.16±7.54 [a]
	Experimental	28	58.12±6.49	52.97±7.43	38.83±5.65 [a,c]	26.27±6.83 [b,c]
CGI-SI	Control	27	6.04±0.65	5.26±0.95	3.46±0.87	2.95±0.98 [a]
	Experimental	28	5.97±0.72	4.82±0.68	3.06±0.72 [a,c]	2.51±0.63 [b,c]

Results of the present study indicate that the experimental group has more rapid and greater effect in anxiety reduction than the control group. In addition, patients' subjective experience was better when practicing calligraphy. For example, some patients said they were able to concentrate their attention and empty out all other thoughts from their mind, they had stable emotion and good mood, and that they felt emotional relief after calligraphy training. Though the sample was not large, we can see that calligraphy training can significantly improve state of depression and anxiety in the short term, so as to reduce anxiety symptoms and bolster the effects of drugs. These results are consistent with those reported by Calligraphy practice can be quite easy and convenient, since it can be carried out out at home to facilitate physical and mental health and reduce recurrence rate of diseases. Short-term treatment and observation is far from enough to evaluate the effects of any therapy method. We need to proceed with long-term follow up interventions, to grasp patients' state of mind and give psychological consulting based on an overall consideration of various factors. It is a process of remolding personality, optimizing the environment, and a process full of difficulty and hardship. Further exploration is needed for influence of factors, such as patients' personality, families, and social environment on the effects of treatment.

References

1. Yang XL, Li H H, Hong H H, Kao HSR (2010) The effects of Chinese calligraphy handwriting and relaxation training in Chinese Nasopharyngeal Carcinoma patients a randomized controlled trial. International Journal of Nursing Studies. 47 (5): 550-559.
2. Kao HSR (1986) Psychology of Chinese Calligraphy. Taipei: Great Eastern, p. 10-30.
3. Kao HSR, Goan CH (1995) Cognitive Aspects of Chinese Calligraphy. Taipei: Great Eastern, pp. 25-26.
4. Fan ZS, Kao HSR, Wang YL, Guo NF (1999) Calligraphic Treatment of Schizophrenic Patients. In G Leedham, M Leung, V Sagar, X-H Xiao (Eds.). Proceedings of the 9th Biennial Conference of the International Graphonomics Society. June 28-30, 1999. Nanyang Technological University. Singapore. pp. 125-131.
5. Kao HSR, Yuen WS (2000) Emotional Effects of Chinese Brush Handwriting on Neurotic Patients. In. HSR Kao Chinese Calligraphic Therapy. HK: Hong Kong University Press. pp. 415-430.
6. Kao HSR, Tong MY (2000) Emotional Effects of Chinese Brush Handwriting on Depressive Patients. In. HSR Kao. Chinese Calligraphic Therapy. HK: Hong Kong University Press. pp. 431-443.
7. Zhu ZH, Wang R, Kao HSR, Zong Y, Liu ZK, et.al. (2014) Effect of calligraphy training on hyperarousal symptoms for childhood survivors of the 2008 China earthquakes. Journal of Neuropsychiatric Disease and Treatment, 10: 977-985.
8. Liu, Anna, (2017) "The Effects of Chinese Calligraphy on Reducing Anxiety and Comorbid Depression Levels Among Breast Cancer Patients in Hong Kong" (2017). Dissertations. 1636.
9. Wagner S (2018) Calligraphy Therapy Interventions for Managing Depression in Cancer Patients: A Scoping Study. Altern Integ Med 7(01): 260.

10. Fancourt D, Finn S (2019) What is the evidence on the role of the arts improving health and well-being? A scoping review. Copenhagen: WHO Regional Office for Europe; 2019 (Health Evidence Network (HEN) synthesis report 67). PP. 133.

11. Chen W, He Y, Gao Y, Zhang CP, Chen CS, et al. (2017) Long-Term Experience of Chinese Calligraphic Handwriting Is Associated with Better Executive Functions and Stronger Resting-State Functional Connectivity in Related Brain Regions. Plos One, 12(1): e0170660.

12. Chen W, Chen C, Yang P, Bi S, Liu J, et al. (2019) Long-term Chinese calligraphic handwriting reshapes the posterior cingulate cortex: A VBM study. PLoS ONE 14(4): e0214917.

13. Kao HSR (2000) Chinese Calligraphic Therapy. HK: Hong Kong University Press, pp. 417-425.

14. Luo ZX, Miao DM, An C et al. (2000) A preliminary study of emotional effect of calligraphy training on cadets. Chinese Mental Health Journal, 14: 256-257, 241.

15. Zhou W, He QH (2005) Effect of EEG biofeedback in the treatment of generalized anxiety disorder. Chinese Journal of Behavioral Medical Science, 14:259.

DOI: 10.32474/OAJCAM.2021.03.000159