Calligraphy Therapy Interventions for Managing Depression in Cancer Patients: A Scoping Study

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Abstract

For the last three decades, scientists have conducted research for medical therapy interventions of Chinese calligraphy handwriting (CCH). Clinical research has found CCH has positive effects on behavioral and psychosomatic disorders: Depressive symptoms in cancer patients, psychiatric and cognitive disorders in elderly people, stress reduction, hyperarousal symptoms after earthquake, changes in theta waves and other diseases such as hypertension and Attention Deficit Hyperactivity.

Depression and anxiety are common among people diagnosed with cancer. CCH as a medical intervention was tested in Nasopharyngeal cancer patients (stage II and III). CCH improved certain stress symptoms and mood disturbances.

All studies showed a notable paucity for CCH intervention in medical therapy. However, to apply CCH for improving depressive symptoms in cancer patients and to strengthen the evidence, further research is required.

Keywords: Arts therapy; Cancer; Depression; Calligraphy; Calligraphy therapy

Introduction

This scoping study addresses the following research question: What is known from the literature about Chinese calligraphy handwriting (CCH) interventions for managing depressive symptoms in cancer patients and CCH interventions used as medical therapy in general.

Methods

Electronic databases were searched to identify published studies investigating calligraphic interventions for managing depression in cancer patients and used as medical therapy in general. The searching strategies proposed by Arksey and O'Malley were as follows: 1. identifying the research question; 2. identifying the relevant literature; 3. study selection; 4. charting the data and 5. Collating the results [1,2].

Search Strategy

The following electronic databases were searched: PubMed, Web of Science, ERIC, PsycINFO and Cochrane. The searches were conducted using the following keywords: calligraphy, calligraphy therapy, cancer and depression. The searches were districted to abstracts and articles published in English.

Study Selection

All identified abstracts and/or articles were screened by the following selection criteria: published in peer reviewed journals in full manuscript format, written in English language, published within the last ten years (2007 to 2017) and included calligraphic intervention which was compared to control group without intervention. Studies which met inclusion criteria were read in full. Data was extracted and summarized in Table 1 and Table 2 with the following design: author, country and year; intervention; participant characteristics; intervention design and details; assessment phases and outcome measures; results; type of calligraphy and limitations.

Results

Only one RCT (randomized controlled trial) tested a calligraphic intervention for managing depressive symptoms in cancer patients (Nasopharyngeal cancer with stage II and III) (Table 1) [3]. This study compared the effects of CCH with those of progressive muscle relaxation and imagery training on physiological arousal parameters, symptom distress and mood disturbance.

CCH demonstrated slow-down effects in heart rate, blood pressure and respiration rate. It also improved certain stress symptoms and mood disturbance.

Five RCTs were found for CCH interventions used as medical therapy in general (Table 2). In one RCT CCH therapy was used as part of multiple training modalities [4]. This study is not listed in Table 2 as CCH was not used as single intervention. Another study tested CCH to reduce stress symptoms in adults compared to meditation [5]. CCH decreased heart rate and increased skin temperature.

A fourth study showed that CCH can improve cognitive health in older people [6]. CCH improved orientation, attention and calculation in CCH group.

A fifth study investigated CCH therapy in children on hyperarousal symptoms after 2008 China earthquakes [7]. Arousal symptoms and salivary cortisol levels decreased in the intervention group. Last study provided evidence of cortical excitation in EEG theta waves coming from changes in the practitioner's body, emotions and cognition [8].

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Author, country and year	Intervention	Participant characteristics	Intervention design and details	Assessment phases and outcome measures	Results	Type of calligraphy	Limitations
Yang et al. [3]	CCH and relaxation in cancer patients	• Nasopharyngeal cancer (NPC) stage II (45.6%) and III (54.4%) • N=287, refusal rate N=197 • N=90 - N=30 relaxation group, dropouts (n=4) • N=30 CCH group, dropouts (n=6) • N=30 control group, dropouts (n=1) • Mean age: 49.63 ± 10.81 yrs. (range: 22-71 yrs.)	• RCT • Relaxation training 30 min/day for 4 weeks (20 min progressive muscle relaxation, PMR) followed by 10 min guided imagery, GI) • CCH-30 min/day for 4 weeks • no treatment for control group	• Ax phases: T1-baseline T2-2 weeks from T1 T3-4 weeks from T1 T4-FU, 2 weeks from T3 • Physiological arousal parameters - heart rate, blood pressure, respiration rate - pre-post treatment measurements on 5 days a week from T1 to FU • Psychosocial parameters: - SDS (Symptom Distress Scale) plus 5 added items - Profile of Mood State-Short Form (POMS-SF, Chinese version) - Karnofsky Performance Status (KPS)	• N=79 in final analyses (87.8%) • sig. lower heart rate, blood pressure and repiration rate in two intervention groups • SDS - sig. improved insomnia in relaxation group at T2, T3 and FU - sig. improved concentration in CCH group at T2 and T3 • KPS: no sig. treatment effect •POMS-SF - sig. improved tension-anxiety at T3 and FU, depression injection at T2 and T3, anger-hostility at T3 and FU in relaxation group - sig. improved depression injection at T2 and T3, anger-hostility at T3 and FU, fatigue-inertia at T2 and T3 in CCH group	Chinese calligraphy characters from handbook	• high refusal rate

NPC-Nasopharyngeal Cancer; PMR: Progressive Muscle Relaxation; GI: Guided Imagery; Ax-Assessment phases; FU-Follow-up; SDS: Symptom Distress Scale; POMS-SF-Profile of Mood State-Short Form; KPS: Karnofsky Performance Status

Table 1: Studies - calligraphy therapy in cancer patients.

Author, country and year	Intervention	Participant characteristics	Intervention design and details	Assessment phases and outcome measures	Results	Type of calligraphy	Limitations
Kao HSR et al. [5]	CCH and meditation for stress reduction	• N=30, screened by General Health Questionnaire (Chinese version of GHQ-28) • N=10 CCH group • N=10 meditation group • N=10 control group • age 19-35 yrs.	• RCT •one session/week for 8 weeks • treatment time 33 min 26 sec • color test for stress arousal • standard technique for meditation • no treatment for control group	• Ax phases: before, during and after each treatment session • heart rate • electromyographic scores • skin temperature • respiratory rate	• sig. lower heart rate in CCH and meditation group • sig. decrease in electromyographic scores in meditation and control group • sig. increased skin temperature in CCH and meditation group • sig. decreased respiratory rate in meditation group	Chinese calligraphy characters from handbook	• small sample size
Kwok et al. [6]	CCH in cognitive health	• N=31, inclusion criteria Chinese version of the Mini-Mental State Examination (CMMSE) score 20-25, mild cognitive impairment • age>70 yrs. • N=14 CCH group • N=17 control group	• RCT • CCH for 30 min, once a day, 5 days/week, for 8 weeks • no treatment for control group	Ax phases: • T1-baseline • T2-8 weeks from T1	• CMMSE - sig. improved orientation, attention and calculation in CCH group - sig. decline in orientation in control group	Chinese calligraphy characters from handbook	• small sample size • only one outcome measure-ment, CMMSE
Zhu et al. [8]	CCH on hyperarousal symptoms connected to 2008 Sichuan earthquakes in China	Experiment 1 • N=210, selected from two villages close to Sichuan earthquake areas, one year after disaster • N=129 CCH group, age 10.51 ± 1.15 yrs. • N=81 control group, age 10.52 ± 1.13 yrs. Experiment 2 • N=41 CCH group, age 10.52 ± 1.16 yrs. • N=39 control group, age 10.54 ± 1.15 yrs. • selected from earthquake regions	• RCT • CCH for 1 hr/day, 5 days/week for 30 days • control group followed their normal daily routine	Experiment 1 • Ax Phases: - T1- baseline - T2-15 days from T1 - T3-30 days from T1 • Chinese version of Children's Revised Impact of Event Scale (CRIES-13) Experiment 2 • CRIES-13 at T1, T2 and T3 • salivary cortisol measurement - saliva sample taken on T1, T2 and T3 - cotton ball under tongue for 5 min - 2 ml sample - centrifugation	Experiment 1 • sig. improved arousal scores (CRIES-13) at T3 in CCH group Experiment 2 • sig. lower salivary cortisol in CCH group • no information about CRIES-13 scores	Chinese calligraphy characters from handbook	• no CRIES-13 sore results in experiment 2

Xu, et al.[7]	CCH on brain function: cortical excitation of theta rhythm	• N=16 - N=8 CCH group - N=8 control group	• RCT • CCH training for 10 days, 20 min/10 sessions • no treatment for control group	• Ax Phases: - T1-baseline - T2-10 days from T1 • EEG waves (alpha and theta waves) recordings under four conditions: eyes open, color test, eyes closed, writing/sitting quietly	• sig. increased theta waves in CCH group • no sig. increased theta waves in control group • global style characters evoked greater theta and alpha waves than detailed characters	Characters varying in visual-spatial properties (linear, nonlinear, global, detailed)	• one channel EEG instad of multi-channels • small character number to investigate defined character properties

GHQ-General Health Questionnaire; Ax-Assessment phases; CMMSE-Chinese version of Mini-Mental State Examination; CRIES-13- Chinese version of Children's Revised Impact of Event Scale

Table 2: Studies - Overview about calligraphy therapy research.

Conclusions

There is a notable paucity of CCH interventions in medical therapy. Further research is required to strengthen the evidence base for CCH interventions in managing depression in cancer patients.

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