

Effects of Qi-therapy on blood pressure, pain and psychological symptoms in the elderly: a randomized controlled pilot trial

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SUMMARY. Recently, we reported that Qi-therapy may be beneficial in reducing negative psychological symptoms and increasing melatonin levels, neutrophil function and natural killer cell cytotoxicity in young subjects. However, there is little scientific evidence of its efficacy in elderly subjects. Therefore, this study was designed to investigate the effects of Qi-therapy on anxiety, depression, fatigue, pain and blood pressure in elderly subjects. Ninety-four elderly subjects were randomly assigned to either Qi-therapy ($n = 47$) or mimic therapy ($n = 47$) groups. Both groups received a 10-min intervention period once using similar procedures. The Qi-therapy group exhibited greater reduction in anxiety, depression, fatigue, pain level and blood pressure compared to the placebo group; the difference in anxiety was significant ($P = 0.014$). These results suggest that even a brief application of Qi-therapy may exert a positive psychological and physiological effect. However, further research is necessary in order to fully understand the long-term impact of Qi-therapy on psychological health and the cardiovascular system.

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INTRODUCTION

Estimates from a recent survey indicate that more than 30% of Korean elderly dwelling in the community suffers from physical and psychological symptoms of stress that might occur in the aging process.^{1,2} Common symptoms that elderly experience are fatigue, depression, anxiety and vague aches and pains. They also experience at least one condition that is accompanied by pain through physiological changes.¹ The elderly generally confront

decreasing physical strength, mental vigor and vitality as part of the aging process. This may result in adverse mental and psychological effects, for example, anxiety, panic disorder, phobias and depression.

From the Oriental medical point of view, health problems are considered to be a disturbance of the circulation of Qi or disharmony and depletion in the supply of Qi.³ This blockage, stagnation, imbalance,

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or change in the pattern or organization of Qi results in diseases. This disruption can be evidenced by such symptoms as pain, stiffness, change in body temperature, or discoloration of the skin.

In general, a stressful lifestyle blocks the Qi flow in the meridian and thus disrupts the harmonious state of the body that leads to disease. The elderly confront more stressful situations and events than that of the young population. Death of spouse, lack of social support and physical and biological problems may increase their stress levels.

These deregulatory stress responses have been found to be responsive to some complementary and alternative medicine (CAM) interventions. Massage, therapeutic touch, and Qigong are major CAM strategies are used in clinical practice for the treatment of stress, pain and other cardiovascular symptoms.⁴⁻⁶ Qigong as a traditional complementary intervention has been used for preventing and curing disease, strengthening health and improving human potential when done regularly.⁷ When Qigong practitioners become sufficiently skilled, they can use external Qi (called Qi-therapy; QT) to emit Qi for the purpose of healing others.⁸ It is said that the Qi, as a form of 'energetic information', is emitted from the meridian point of the therapist's palms and transferred to the patient's body via his/her meridian point.⁹ The patient's Qi can be modulated by the insertion of vital Qi at the designated point to achieve a more harmonious and normal state.⁸ Although there is little scientific research on either Qi itself or the mechanism of its effects, it has been shown to be effective.⁹⁻¹² In a comprehensive review of the effects of Qigong on hypertension, Mayer cited studies that found Qigong reduced symptoms of hypertension and showed potential for improvement of other symptoms.¹³ Recently, we reported that QT may be beneficial in reducing many negative psychological symptoms, and increasing melatonin levels, neutrophil and NK cell cytotoxicity in young subjects,¹¹ however there is little scientific evidence of their efficacy on elderly subjects. Therefore, this study was designed to investigate the effects of QT on anxiety, depression, fatigue, pain reduction and the change of blood pressure in elderly subjects.

METHODS

Participants

All subjects were recruited on a voluntary basis from regular strollers (i.e. park walker, three times a week) in three cities (Chunju, Iksan and Kunsan) in Korea. We advertised an offer of a health-check and QT for 2 weeks. Two hundred and seventy-four volunteers participated through the advertisement on the notice board near the park. The subjects were encouraged to join in the study with the promise of an analysis of their overall health status. Inclusion criteria for participants were the following: (1) age

60 and older; (2) presence of chronic pain (arthralgia, low back pain, musculoskeletal pain or neuralgia: at least once a day); (3) no severe cognitive impairment such as dementia or delirium. (4) no experience of any mind-body treatment (massage, yoga, and meditation, etc.) within 6 months. One hundred and three subjects met these criteria and agreed to participate. Of these, nine were excluded from the study because of an incomplete baseline inventory or missing the enrolling day, so ninety-four subjects participated in the study. They were randomized to QT group ($n = 47$; mean age: 64.8 ± 5.0 years; 35 men and 12 women) and placebo QT ($n = 47$; mean age: 63.7 ± 3.4 years; 31 men and 16 women) with block randomization methods: subjects were blind to which intervention group they are in. We also arranged a site for the intervention containing eight beds (four for QT and four for placebo control) with eight QT Masters (three females and five males). The beds were separated to shield the intervention to maintain blinding.

The study received institutional approval from the Human Investigation Committee, and administrative approval from the Wonkwang University Hospital and School of Medicine. All subjects agreed to participate in the study and signed an informed consent form from the Human Subjects Review Board in Wonkwang University Hospital and School of Medicine. All subjects completed the study and received the free membership card to receive QT free (worth approximately US\$ 50) for 2 weeks.

Measurement of psychological symptoms and pain levels

Subjects rated their current level of perceived anxiety, depression, fatigue and pain on a 0-100 horizontally linear visual analog scale (VAS) with 0 (at left) representing an absence of symptoms and 100 representing an extreme level of symptoms.¹⁴ The numerical scale used is a common measure of symptoms with established reliability and validity. Subjects marked the area of pain using a simple illustration of human body.

Intervention

In this experiment, Korean QT (QT: *ChunSoo* Energy Healing)⁸ was performed by Masters who are certified by Institute of *ChunDoSunBup* and who have trained for at least 1 year. They were not involved in any other aspect of the study.

QT was administered in a consistent manner according to the procedures outlined in their textbook. The placebo QT was administered by the same Masters, who mimicking the gestures used in the actual QT without any effort or intention of emitting real Qi. To facilitate this, the Qi-Master concentrated on counting numbers throughout the procedure during the placebo session. Each Master who performed QT on the first day changed to placebo the next day,

and vice versa. The Masters who delivered the two treatments appeared and behaved equally credibly to an independent observer. The subjects received the intervention for 10 min according to the following sequence.

1. The Qi- Master centered him/herself, making a conscious intent to help the subject while becoming mentally aware of self as one with the cosmos.
2. He/she moved his/her hand about 3–10 cm from the body in a pattern from head to toe, becoming aware of changes in sensory cues in the hands.
3. He/she redirected areas of accumulated tension in the subject's body by emitting Qi from the hand.
4. He/she concentrated attention on the specific direction of energy flow (sensory cues), finishing by holding the subject's feet.
5. Subjects turned over and received the same procedure for 5 min on the other side of their bodies.

Compared to other healing methods, QT is active after a short intervention period, and symptoms are observed to disappear after 10 or 15 min therapy, in our experience. For this reason we determined that a 10-min intervention would be appropriate for the present study.

Measurement of blood pressure

Blood pressure was measured by the auscultatory method with a contact microphone secured on the left brachial artery. Systolic (SBP) and diastolic (DBP) blood pressures were measured by a nurse.

Experimental procedure

Two days prior to the beginning of the experiment all subjects visited the facility to become familiar with experimental conditions and fill out their basic information. They were given their assessment appointment. Subjects were asked to refrain from coffee, tea and smoking for at least 2 h before the

assessment and to refrain from alcohol for at least 24 h prior to experiment. In order to avoid diurnal changes in blood pressure, all experimental procedures were performed between 11:00 and 14:00 h. On the first day, 24 QT subjects and 24 placebo control subjects participated in the study, the remainder on the following day. Treatment order was randomly determined and subjects did not know their group assignment.

On arriving for the experiment, subjects were informed of the basic procedure for about 5 min and filled out a consent form. The subjects were seated in a chair to measure SBP and DBP after 5 min of rest. They also marked VAS indicating anxiety, depression, fatigue and pain levels. Following this, the subjects lay supine on beds and received (real or placebo) QT for 10 min. Then, the subjects rested for 10 min in a comfortable posture. After resting, the subjects were seated in chairs and rested for 5 min in order to measure SBP and DBP again. Finally, they again marked the areas of pain and rated their anxiety, depression, fatigue, and pain level with VAS.

Statistical analysis

We used SPSS for windows (version 7.5) for statistical analysis. The results are presented as means \pm S.D. Two way repeated measurements ANOVA were used to evaluate the statistical differences in the two group conditions.

RESULTS

The demographic characteristics for the QT and placebo groups are shown in Table 1. The groups did not differ significantly in age, sex, height, weight, perceived health state and number of pain points.

Psychological effects

Participants' self-reported anxiety, depression, fatigue and pain levels are shown in Table 2 (mean \pm

Table 1 Homogeneity for demographic characteristics of subjects

	Qi-therapy (N = 47)	Control (N = 47)	χ^2	P
Age (years) ^a	64.8 \pm 5.0	63.7 \pm 3.4	18.7	0.2
Sex				
Male	35 (74%)	31 (66%)	0.8	0.4
Female	12 (26%)	16 (34%)		
Height (cm)	159.9 \pm 4.0	161.6 \pm 4.1	15.1	0.5
Weight (kg)	55.2 \pm 8.1	57.6 \pm 6.1	16.7	0.4
Perceived health state				
High	7 (15%)	6 (13%)	0.2	0.9
Middle	11 (23%)	10 (17%)		
Low	29 (62%)	31 (70%)		
Number of pain points	3.87 \pm 1.8	4.30 \pm 1.51	6.9	0.6

^a Values are expressed as mean \pm S.D.

Subscale	Time		ANOVA Group × Time	
	Pre	Post	F(1,92)	P
Anxiety				
Qi-therapy	53.30 ± 23.04	35.64 ± 17.46	10.64	0.002
Placebo	58.30 ± 17.23	48.72 ± 15.27		
Depression				
Qi-therapy	54.89 ± 22.35	36.06 ± 18.53	15.87	<0.001
Placebo	56.17 ± 17.76	48.51 ± 14.59		
Fatigue				
Qi-therapy	61.17 ± 22.15	37.13 ± 20.21	12.27	0.001
Placebo	60.00 ± 20.32	46.81 ± 16.95		

Values are expressed as mean ± S.D. Group × Time means statistical interaction between treatment group and measurement time.

S.D.). Analysis of anxiety change produced a significant effect for time [$F(1, 92) = 120.71, P = 0.0001$] and between groups [$F(1, 92) = 6.29, P = 0.014$] with an interaction effect [$F(1, 92) = 10.639, P = 0.002$]. For depression and fatigue level, the analysis reveals no significant group effect, but a significant time effect [depression: $F(1, 92) = 89.22, P = 0.0001$; fatigue: $F(1, 92) = 144.43, P = 0.0001$] and a significant interaction effect [depression: $F(1, 92) = 15.87, P = 0.0001$; fatigue: $F(1, 92) = 12.27, P = 0.001$] were obtained.

Pain level

Table 3 represents the mean and standard deviation of perceived pain level and the number of pain points.

There were significant effects for time [$F(1, 92) = 229.03, P = 0.0001$] and interaction [$F(1, 92) = 25.90, P = 0.0001$], with no group effect in the pain level. For the number of pain points, there was a significant effect for time [$F(1, 92) = 148.82, P = 0.0001$] and group [$F(1, 92) = 27.83, P = 0.0001$] with an interaction effect [$F(1, 92) = 28.65, P = 0.0001$].

Changes of blood pressure

Analysis of SBP and DBP changes produced a significant effect for time [SBP: $F(1, 92) = 49.44, P = 0.0001$; DBP: $F(1, 92) = 18.94, P = 0.0001$] and interaction [SBP: $F(1, 92) = 11.42, P = 0.001$; DBP: $F(1, 92) = 11.97, P = 0.001$], with no group effect (Table 4).

Subscale	Time		ANOVA Group × Time	
	Pre	Post	F(1,92)	P
Pain intensity				
Qi-therapy	63.23 ± 20.48	44.13 ± 17.30	25.90	<0.001
Placebo	64.72 ± 16.97	55.21 ± 15.98		
Number of pain points				
Qi-therapy	3.87 ± 1.80	0.87 ± 1.42	28.65	<0.001
Placebo	4.30 ± 1.52	3.13 ± 1.12		

Values are expressed as mean ± S.D. Group × Time means statistical interaction between treatment group and measurement time.

Subscale	Time		ANOVA Group × Time	
	Pre	Post	F(1,92)	P
SBP (mmHg)				
Qi-therapy	144.9 ± 22.9	132.8 ± 20.2	11.42	0.001
Placebo	141.3 ± 16.0	137.0 ± 16.3		
DBP (mmHg)				
Qi-therapy	90.0 ± 12.3	82.6 ± 9.7	11.97	0.001
Placebo	87.7 ± 10.1	86.8 ± 9.6		

Values are expressed as mean ± S.D. Group × Time means statistical interaction between treatment group and measurement time.

DISCUSSION

This study examined the effect of 10 min QT on negative symptoms (e.g. anxiety, depression, fatigue, and pain) and blood pressure in elderly subjects. The QT group exhibited a greater reduction in anxiety, depression, fatigue, pain level and BP compared to the placebo group, which was significant in the case of anxiety.

All subjects in both groups reported an increase in positive feelings, but the percentage changes in the QT group were greater compared to those of the placebo group (anxiety: QT, 33%; placebo, 16%; depression: QT, 34%; placebo, 13%; fatigue: QT, 39%; placebo, 21%). The small improvement as a result of intervention in the placebo group may be due to their relaxed posture on the beds. The findings may be limited by the use of VAS for anxiety and depression, which was chosen for simply completion by elderly subjects.

These findings are consistent with our previous studies in which QT, Qigong and meditation have been shown to improve psychological symptoms in young as well as elderly subjects.^{11,12} Our previous study has shown that anxiety, depression levels and mood decreased after they received QT compared to placebo in the young.¹¹ In another study of effects of QT on mood, we found that four sessions of QT reduced tension/anxiety, depression/dejection levels compare to normal care in the elderly.¹² In particular, fatigue level was reduced about 39% in this study.

The present findings are interesting since the meaning of Qi is 'energy' in its Western translation. From the Oriental medicine point of view, applying the vital energy from the palm of the Qi-Master causes a flow of this energy to the subjects and gives them strength to overcome their fatigue.⁸ These results show that acute QT can reduce anxiety, depression and fatigue.

The pain level was reduced about 30% (placebo: 14%) and the number of pain points were reduced significantly (about 77%; placebo: 27%) through QT. In addition to a decrease in the level of pain, all of the subjects who received the QT commented on the satisfaction they experienced in their level of activity and functional ability, while fewer subjects in the control group experienced this result. These results show that QT may diminish the locations and magnitude of pain stimuli by mobilizing the subject's own energy enabling healing and assisting the subjects to effectively cope with pain. In a classic Chinese text, chronic pain as well as many health problems are considered to be disturbances of the circulation of Qi or disharmony and depletion of the supply of Qi.^{8,15} This blockage, stagnation, imbalance, or change in the pattern or organization of Qi results in diseases. QT may enable a restoring process of harmony and balance in the energy system to help the person to self heal. Our present results show QT may successfully relieve pain and improve the psychological health state of elderly subjects

and suggest that this procedure help them perform the desired activities of daily living by removing blockage, stagnation, and imbalance of Qi.

Finally, the systolic and diastolic blood pressure was reduced significantly after receiving Qi. It has been reported that Qi-training and meditation influence the brainstem and thalamus where numerous cell groups function to influence the autonomic nervous system and sensory input.¹⁶⁻¹⁸ At this point, further research is needed to demonstrate that the physiological state attained by QT is similar to one induced by other relaxation methods. QT may induce the subjects to a meditative state and modulate the autonomic nervous system. To clarify this, it would be valuable to measure EEG and other physiological variables. Added to this, it is needed to expand the treatment period and measurement times.

Although we found that QT has a short-term effect in the treatment of BP, pain and negative psychological symptoms, we cannot say for certain whether QT produces sustained effects. Our experience suggests that QT can alleviate pain and reduce anxiety and fatigue for a prolonged time. This pilot study was only short-term, but we wish to expand our finding to determine the effect of frequency of treatment, and the duration of the effect. The evaluation of the residual effect of QT might be helpful for managing the health problems of elderly.

In conclusion, the present finding suggested that the application of 10 min QT may exert a positive psychological and physiological effect. Compared to other healing methods, QT can be effective with a short intervention time and symptoms start to disappear after 10 or 15 min. However, it is necessary to study the effects of multiple sessions, and the long-term effects, and to compare QT with other healing methods such as healing touch, therapeutic touch, reiki, etc. In addition, the effects of QT on elderly subjects or patients with disturbed cardiovascular regulation remain to be studied.

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