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ORIGINAL REPORT

EFFECTS OF QIGONG IN PATIENTS WITH BURNOUT: A RANDOMIZED CONTROLLED TRIAL

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Objective: **To evaluate the efficacy of Qigong in rehabilitation for patients with burnout.**
Design: **Prospective, randomized controlled trial.**
Subjects: **Eighty-two patients (68 women and 14 men, mean age 44.3 (standard deviation 9.1) years) diagnosed with burnout.**
Methods: **Basic care was offered to both the intervention and the control group. Patients in the intervention group received basic care and, in addition, performed Qigong twice a week for 12 weeks. Psychological variables, health-related quality of life, perceived relaxation and physical measurements were assessed at baseline and after the intervention period.**
Results: **No significant difference in treatment efficacy between the groups was found by either intention-to-treat or per-protocol analyses. Both groups improved significantly over time, with reduced levels of burnout, fatigue, anxiety and depression, and increased dynamic balance and physical capacity.**
Conclusion: **In this study, a Qigong intervention twice a week for 12 weeks had no additional effect beyond basic care for patients with burnout.**

Key words: mind-body therapies, burnout, anxiety, depression, randomized controlled trial.

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INTRODUCTION

New sickness compensations due to mental and behavioural disorders in Sweden have increased from 28% to 40% between 2002 and 2006. These were the most common diagnoses among both women and men seeking sickness compensation in 2006 (1). In the Swedish healthcare and social welfare systems the concept of burnout has been replaced by a new diagnosis termed "exhaustion syndrome". In 2003, the Swedish National Board of Health and Welfare created diagnostic criteria for this diagnosis (2) (Table I) according to the International Classification of Diseases (ICD) and Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria. Exhaustion syndrome (ICD-10, F43.8A) is close to Schaufeli & Enzmann's definition of burnout (3). They state that burnout is characterized by exhaustion accompanied by distress, a sense of reduced effectiveness, decreased motivation, and dysfunctional attitudes and behaviours at work (3). Exhaustion syndrome in Sweden is characterized primarily by mental exhaustion and reduced endurance as a result of identifiable persistent stress factors for at least 6 months. This definition includes both occupational (3) and non-occupational (4) stressors, and correlates with a broader definition of burnout.

There is insufficient evidence on the type of rehabilitation that should be offered to sick-leave patients who have stress-related disorders or burnout. Five randomized controlled studies have evaluated rehabilitation programmes based on cognitive behavioural therapy (CBT) principles, both as group (5–8) and individual treatment (7, 9). In 4 of the programmes, no change or a small improvement in psychological variables was found for the intervention compared with the control condition (6–9).

There is increasing interest in mind-body therapies in the Western world. Qigong is one such therapy that originates from traditional Chinese medicine (TCM), and it aims to improve health by re-balancing qi. *Qi* denotes vital energy, and *gong* means practice or skill (10). The main features of Qigong are concentration, relaxation, mind exercises, breathing exercises, body posture and slow movements (11). Patients with burnout often report physical and emotional exhaustion due to stress that persists for a long time without recovery. A reason that Qigong might be effective for patients with burnout is its potential to reduce activity in the sympathetic nervous system (12), which should be beneficial for these patients. Prospective, randomized controlled trials on therapies including Qigong have been evaluated for patients with different diagnoses with varying results. Qigong reduces depression in elderly depressed patients (13), and improves physical activity and balance in elderly cardiac patients (14). No differences were found between Qigong and a control condition for psychosocial health in geriatric patients (15), or symptoms and muscle function in women with fibromyalgia (16). Qigong has not been found to be different from exercise therapy in patients with chronic neck pain (17) or patients with mild essential hypertension (18).

Table I. *Diagnostic criteria for exhaustion syndrome from the National Board of Health and Welfare in Sweden. All capital letters must be fulfilled for the diagnosis*

A		Physical and psychological exhaustion for at least 2 weeks. The symptoms should be developed as a consequence of one or several stressors during at least 6 months.
B		Evident lack of mental energy in the form of reduced initiative, reduced endurance, or an extended time for recovery after mental stress.
C		At least 4 of the following symptoms almost every day during a 2-week period:
	1	Difficulties with concentration or memory
	2	Reduced ability to handle demands or to work with time pressure
	3	Emotionally unstable
	4	Disturbed sleep
	5	Physical weariness
	6	Physical symptoms, as pain, chest pain, palpitations, digestive complaints, dizziness or sound hypersensitivity
D		Symptoms should cause clinical suffering or reduced capacity at work, in social life or in other important respects.
E		The condition is not caused by substances or somatic disease.
F		If criteria are fulfilled for depressive episode, dysthymia or anxiety disorder, the "exhaustion syndrome" will be reported as a secondary diagnosis.

In a previous randomized controlled study (8), we evaluated 2 rehabilitation programmes for patients with burnout. One used cognitive-oriented behavioural rehabilitation (CBR) (8) and Qigong and the other used only Qigong. Both programmes found reduced levels of burnout, self-rated stress behaviour, fatigue, depression, anxiety and obsessive-compulsive symptoms, but did not find significant differences between the programmes in a per-protocol analysis (8). Qigong has not been compared with non-treatment conditions in burnout patients. In our earlier rehabilitation programme the patients were trained in Qigong once a week for one year. However, long-lasting therapies are costly and could be difficult to follow for patients, thus a shorter more intense programme should be preferred, considering it had the same effect. By comparison, another body-mind therapy (body awareness therapy) for patients with non-specific musculoskeletal disorders resulted in reduced distress, pain, and improved negative self-image after 3–4 months of twice weekly practice (19). Therefore, the current study was designed to evaluate the effectiveness of a biweekly, 12-week Qigong intervention in comparison with a control condition in burnout patients.

METHODS

Study population and study design

A total of 290 consecutive patients (217 women and 73 men) were screened between January 2005 and December 2006 at the Stress Clinic, University Hospital of Umeå, Sweden, for study eligibility. Most of the patients were referred to the Stress Clinic from general practitioners. Before inclusion, all patients underwent medical and psychological examination at the Stress Clinic to confirm the diagnosis of burnout according to the new Swedish criteria for exhaustion syndrome (2) (Table I).

The patients received verbal and written information regarding the study and were included if they met the inclusion criteria and provided written informed consent. The inclusion criteria were: diagnosis of burnout and exhaustion syndrome according to the Swedish criteria (2) (Table I); 25–65 years of age; and an average score ≥4.0 on the Shirom-Melamed Burnout Questionnaire (SMBQ) (20). Exclusion criteria were: known abuse of alcohol or drugs or participation in other intervention studies. Patients who were included in the study were on a waiting list for CBR (8) at the Stress Clinic. The study was approved by the Research Ethics Committee at the Medical Faculty of Umeå University (Dnr 05-074Ö).

The inclusion criteria were met by 128 patients (103 women and 25 men) with a mean age of 45.0 (standard deviation (SD) 8.9) years. Of these, 46 patients (35 women and 11 men) with a mean age of 46.3 (SD 8.3) years declined to participate. There were no significant differences in age, sex or SMBQ score between patients who participated in the study and those who declined. The final study population consisted of 82 patients (68 women and 14 men), with a mean age of 44.3 (SD 9.1) years. Randomization was performed by an independent person who drew lots that allocated the patients to either the intervention or the control condition. Randomization occurred when enough patients were recruited to form a group; this was done 4 times. Each patient had a 50% chance of assignment to the intervention.

Outcome measures

Psychological variables, health-related quality of life (HRQoL), perceived relaxation and physical measurements were assessed at baseline and after the intervention period. In addition burnout (SMBQ) was assessed at 4 and 8 weeks. The primary outcome variable was the SMBQ.

Psychological variables

The *Shirom-Melamed Burnout Questionnaire (SMBQ)* contains 22 items, each rated on a 7-point scale. The SMBQ comprises the subscales emotional and physical exhaustion, tension, listlessness and cognitive weariness (20). In this study an overall index was computed as the mean of all items. A higher score indicates a higher level of burnout.

The *Self-Concept Questionnaire (SCQ)* measures self-esteem based on 7 components of self-esteem: significance; worthiness; appearance and social acceptability; competence; resilience and determination; control over personal destiny; and the value of existence. This instrument consists of 30 items, each scored on an 8-point scale (0 = "completely disagree" to 7 = "completely agree"), which are summed up to a total score (0–210 points) (21). Higher scores indicate higher self-esteem.

The patients estimated their fatigue during the previous 2 weeks with the *Checklist Individual Strength questionnaire (CIS),* which measures 4 dimensions of fatigue: subjective experience of fatigue; concentration; motivation; physical activity level. CIS consists of 20 items, each rated on a 7-point scale (1 = "Yes, that is true" to 7 = "No, that is not true") (22). The composite CIS total score (20–140) was calculated; higher scores indicate a worse condition.

The *Hospital Anxiety and Depression Scale (HADS)* consists of 14 items divided into 2 subscales to measure the occurrence of anxiety and depression. Both subscales consist of 7 items scored on a 4-point scale (0–3) and are summed to a total score (0–21 points) (23). Higher scores indicate more symptoms.

Health-related quality of life

The Swedish version of the *36-item Short Form Health Survey (SF-36)* was used to measure HRQoL. The SF-36 consists of 36 items and

covers 8 domains: physical functioning; role limitations due to physical problems; bodily pain; general health perceptions; vitality; social functioning; role limitations due to emotional problems; and mental health. In this study 2 summary scores were calculated: the physical component summary score (PCS) and the mental component summary score (MCS) (24). Lower scores indicate a lower HRQoL.

Perceived relaxation

Degree of relaxation was measured with 4 items from the *Swedish version of the Physical Assessment Scale (S-PARI)* (25). These items were "My muscles feel relaxed," "I feel very calm," "I feel very relaxed," and "I feel refreshed". Each item was scored on a 5-point scale (1–5) with a maximum score of 20 points. A higher score indicates a more relaxed condition.

Physical measurements

Static balance was assessed by standing on one leg at a time. The patient stood without shoes in a square (35 × 35 cm) placed 2 m from the wall. One leg was lifted, but had contact with the calf of the supporting leg. The arms hung by the sides with the thumbs in contact with the thighs. In this position, the patient turned his head from side to side at a self-selected speed but should not lose his balance. Time to loss of balance was recorded, but all patients were stopped at 120 sec (26). The better of 2 trials was used in the analyses.

Dynamic balance was assessed by walking 20 steps heel-to-toe on a 1 cm width line with shoes on and eyes open. One trial was allowed and both the time in sec and the number of steps outside the line were recorded (27).

Physical capacity was measured by a 2-km walk test (28). A prediction equation that includes heart rate at the end of the walk, walking time, age, and body mass index (BMI) can be used to predict maximal oxygen uptake (VO_{2max}). Separate equations are used for women and men. The patients walked 10 laps on an indoor 200-m athletic track. The patients were given verbal instructions to "walk the distance as fast as you can, without risking your health". In this study, only the time required to walk 2 km is presented.

Physical activity in daily life was measured using a pedometer (SILVA Pedometer Plus, ©SILVA Sweden AB, Sollentuna, Sweden) to monitor total daily step counts. The patients were instructed to wear the pedometer for 2 days from the time they got up in the morning until they went to bed. The 2-day average number of steps was used in the analyses.

Intervention

The intervention group performed Qigong in 1-h sessions, twice a week for 12 weeks. Each group included both men and women, included 8–15 patients, and was supervised by a physiotherapist trained in Qigong. The Qigong programme was the same every session and consisted of 3 parts: (*i*) warm-up movements; (*ii*) basic movements to affect body awareness, balance and coordination, breathing and muscular tension; and (*iii*) relaxation and mindfulness meditation with self-performed body massage at the end. The basic movements visualize different animals, such as "the crane stretches itself" and "the rhinoceros looks at the stars". The Qigong programme was mostly performed standing with background music. If the patients preferred to perform the Qigong programme in a sitting or lying position, they could. A printed summary of the Qigong movements was offered to the patients who wanted to perform additional Qigong at home.

Both intervention and control groups took part in basic care at the Stress Clinic, and this usually included follow-up visits with the physician for patients who were in need of this. The physician handled prescriptions of medication and sick-leave certificates, but also gave general advice concerning recovery, sleep, daily life routines and physical activity.

Statistical analysis

A power analysis showed that 30 patients per group would give a 90% power to detect a statistically significant difference (<0.05) between the 2 groups, assuming a mean difference in SMBQ of 0.4 and a within-group standard deviation of 0.7. To account for potential drop-outs, the study was designed to randomize at least 80 patients.

The intention-to-treat analyses included all the 82 randomized patients. Per-protocol analyses included patients who completed the 12-week study period, which were 33 patients in the intervention group and 35 patients in the control group. Baseline characteristics were analysed with Pearson's χ^2 tests (categorical variables) and independent 2-sample *t*-tests (continuous variables). To analyse the effects of the intervention, differences were calculated between values at baseline and after the intervention period. The variables were not normally distributed and therefore non-parametric statistics were used to test the magnitude of change within (Wilcoxon signed-ranks test) and between the groups (Mann-Whitney *U* test). To assess changes over time in SMBQ, repeated measures analyses of variance with time as a within-subject variable and group as a between-subject variable were used. All statistical analyses were performed in SPSS version 14.0 (SPSS Inc., Chicago, IL, USA) and a *p*-value less than 0.05 was considered significant.

An imputation procedure was used to adjust for missing responses in single items in the SMBQ, SCQ, CIS, HADS and SF-36 instruments. Missing responses were replaced with the median response for the group; this occurred in 0.2–0.7% of the items. If responses were missing to more than one item in each HADS subscale and more than 3 items in the other questionnaires, the patient was excluded from the analyses. Missing responses in the intention-to-treat-analyses were replaced with the mean value change between the measurement points. Mean value change was calculated separately for the intervention and control group as well as for women and men. Patients from the intervention group who dropped out were assigned the same mean value as the control group.

RESULTS

A total of 33 patients in the intervention group and 35 in the control group completed the 12-week intervention period. Characteristics for the study population are presented in Table II. There were no differences between the groups with respect to background variables (Table II). A flowchart of patients participating in the study and reasons for dropping out are illustrated in Fig. 1.

Table II. B*aseline characteristics for intervention and control groups*

Variable	Intervention group ($n=41$)	Control group ($n=41$)
Sex, female/male, *n*	34/7	34/7
Age, mean (SD)	43.8 (9.7)	44.7 (8.6)
Education, *n* (%)		
Primary/secondary school	17 (41.5)	24 (58.5)
University	24 (58.5)	17 (41.5)
Type of work, *n* (%)		
With people	26 (63)	26 (63)
With things	4 (10)	5 (12)
With data	11 (27)	10 (24)
Family situation, *n* (%)		
Living alone	4 (10)	5 (12)
Living with another adult	11 (27)	8 (19.5)
Living with adult and children	21 (51)	24 (58.5)
Single parent	5 (12)	4 (10)
Physical activity, *n* (%)*		
<30 min/day	15 (37.5)	13 (32)
≥30 min/day	25 (62.5)	28 (68)
Physical exercise, *n* (%)*		
≤2 h/week	34 (89.5)	35 (87.5)
>2 h/week	4 (10.5)	5 (12.5)
Sick-listed, mean (SD)		
Days until randomization	481 (447)	631 (600)

*$n<41$ because of missing data.
SD: standard deviation

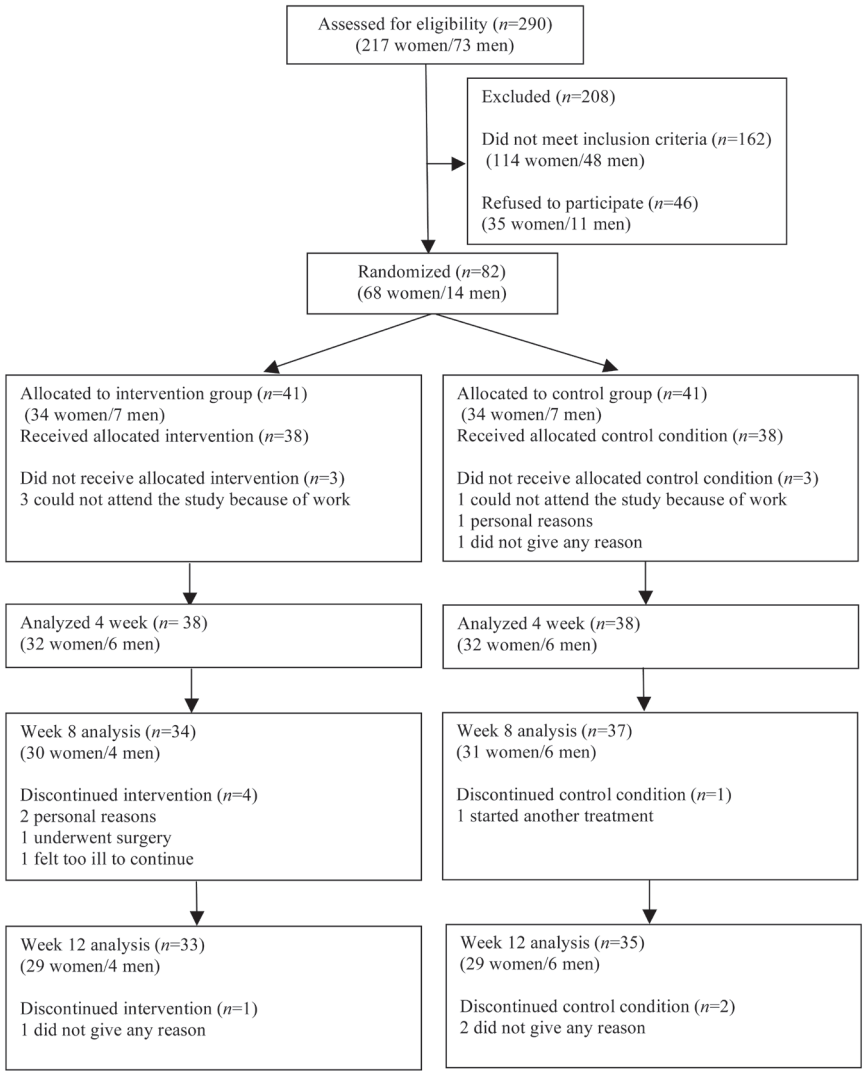

Fig. 1. Study flowchart.

Drop-outs

A total of 14 patients (10 women and 4 men) with a mean age of 40.9 (SD 10.9) years decided to withdraw from the study: 8 were from the intervention group and 6 from the control group (Fig. 1). There were no significant differences in SMBQ score, sex, or age between the patients who completed the intervention period and the drop-outs.

Compliance

There were no differences between the groups in the basic care with visits to the physician at the Stress Clinic. Fifteen patients in the intervention group and 13 in the control group had one or two visits to the physician during the intervention period. Intervention group attendance was 15.2 (SD 5.3) of the 24 Qigong sessions. Half of the intervention group patients (51.5%) reported that they performed additional Qigong at home. Approximately one-third (36%) of those performing additional Qigong at home reported that they performed Qigong once a week. During the intervention period, 21% of

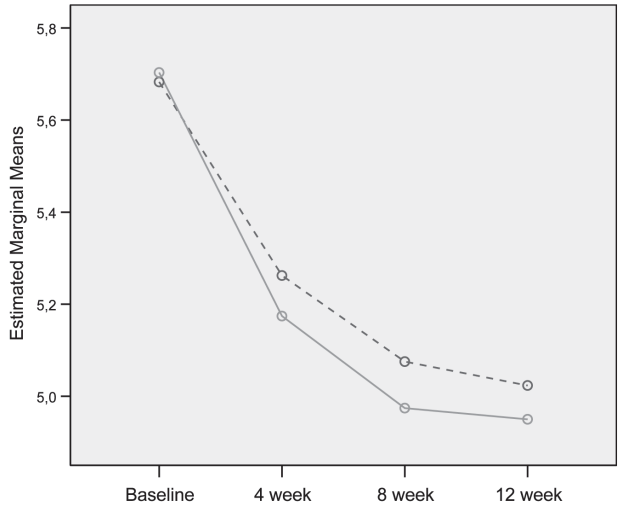

Fig. 2. Mean values in Shirom-Melamed Burnout Questionnaire during the intervention period assessed with variance analysis of repeated measures. Intervention group ——— ; Control group --------.

Table III. *Per-protocol analysis of psychological variables, health-related quality of life and perceived relaxation at baseline and after the intervention period for the intervention and control groups*

	Intervention group ($n=33$)			Control group ($n=35$)			*p*-value† between the groups
	Baseline Median (IQR)	After Median (IQR)	*p*-value*	Baseline Median (IQR)	After Median (IQR)	*p*-value*	
SMBQ	5.8 (5.0–6.0)	5.4 (4.4–5.8)	<0.001	5.8 (4.8–6.2)	5.0 (4.5–5.7)	<0.001	0.702
SCQ	112 (97–131)	116 (104–145)	0.005	123 (96–138)	128 (97–144)	0.319	0.128
CIS total	112 (97–120)	102 (86–114)	0.001	106 (89–123)	99 (87–110)	0.005	0.467
HADS anxiety	12 (10–15)	11 (7–13)	0.009	11 (8–13)	10 (8–14)	0.028	0.525
HADS depression	11 (8–12)	7 (5–12)	<0.001	10 (7–12)	8 (5–11)	0.015	0.398
SF-36: PCS	39.6 (33.8–46.8)	39.7 (35.6–52.2)	0.083	37.8 (29.6–45.7)	42.3 (35.4–48.6)	0.026	0.769
SF-36: MCS	20.6 (16.6–29.7)	28.6 (17.8–43.0)	0.041	26.8 (18.8–37.3)	28.1 (21.7–39.8)	0.407	0.385
S-PARI	8 (5–10)	8 (7–12)	0.001	8 (5–11)	8 (6–10)	0.367	0.110

*Differences between values at baseline and after the intervention period.
†Differences between groups are calculated from the mean changes for each group.
CIS: Checklist Individual Strength questionnaire; HADS: Hospital Anxiety and Depression scale; IQR: interquartile range; MCS: Mental Component Summery score; PCS: Physical Component Summery score; SCQ: Self-Concept Questionnaire; SF-36: 36-item Short Form health survey; SMBQ: Shirom-Melamed Burnout Questionnaire; S-PARI: Physical Assessment Scale of the Relaxation Inventory.

the intervention group and 20% of the control group reported having complementary treatment outside the Stress Clinic. This included massage, acupuncture and different treatments for body awareness. Thirty percent of the intervention group and 33% of the control group reported having individual or group conversational therapy outside the Stress Clinic during the intervention period.

Intention-to-treat analyses

There were no significant between-group differences for any of the variables.

In the intervention group, there were significant improvements in all psychological variables, HRQoL, perceived relaxation and physical measurements, except static balance and physical activity. In the control group, there were significant improvements in burnout, fatigue, anxiety, depression, PCS scores, dynamic balance, and physical capacity.

Per-protocol analyses

Psychological variables, HRQoL and perceived relaxation. No significant differences in SMBQ and other psychological variables, HRQoL or perceived relaxation were found between the intervention and control group at baseline or after the intervention period. Both groups improved significantly over time and had reduced levels of burnout (Fig. 2), fatigue, anxiety and depression. Median values of the psychological variables, HRQoL and perceived relaxation at baseline and after the intervention period are presented in Table III.

Physical measurements. There were no significant differences in physical measurements between the intervention and control group at baseline or after the intervention period. Both groups improved significantly over time in dynamic balance and physical capacity. Median values of the physical measurements at baseline and after the intervention period are presented in Table IV.

DISCUSSION

In this randomized controlled study of a 12-week Qigong intervention for burnout patients, no differences in psychological variables, HRQoL, perceived relaxation or physical measurements were found between the intervention and the control group, either in intention-to-treat analyses or per-protocol analyses. Both groups improved significantly with reduced levels of burnout, fatigue, anxiety, depression and

Table IV. *Per-protocol analysis of physical measurements at baseline and after the intervention period for the intervention and control groups*

	Intervention group ($n=33$)			Control group ($n=35$)			*p*-value† between the groups
	Baseline Median (IQR)	After Median (IQR)	*p*-value*	Baseline Median (IQR)	After Median (IQR)	*p*-value*	
Physical measurements							
Static balance right, sec	13 (6–48)	22 (5–54)	0.695	20 (7–40)	22 (7–58)	0.701	0.901
Static balance left, sec	14 (7–40)	10 (4–45)	0.765	20 (7–47)	16 (6–56)	0.875	0.826
Dynamic balance, sec	14 (12–16)	13 (10–17)	0.022	13 (12–16)	12 (10–14)	0.035	0.683
Physical capacity, min	18 (17–20)	18 (17–19)	0.012	18 (17–20)	17 (16–19)	<0.001	0.948
Physical activity, steps	6576 (3919–8297)	7074 (4404–8854)	0.861	7908 (4298–10468)	8011 (4318–10737)	0.800	0.995

*Differences between values at baseline and after the intervention period.
†Differences between groups are calculated from the mean changes for each group.
IQR: interquartile range.

increased dynamic balance and physical capacity. There were no additional effects of Qigong training on recovery in burnout patients. However, compliance in the intervention group was low. The patients attended an average of 15.2 of the 24 sessions, and this means just over 1 a week. Studies with more extensive Qigong have shown favourable results compared with control conditions. Qigong training 5 times a week for 5 weeks reduced activity in the sympathetic nervous system in computer operators (12), and Qigong 3 times per week for 16 weeks reduced depression in elderly depressed patients (13). In our previous study (8), patients who trained in Qigong once a week for one year reduced more in SMBQ scores during the intervention period compared with this study. Therefore the effect of Qigong in our study might have been greater if additional sessions per week or a longer intervention period had been used. However, the compliance for a twice a week programme was low. Therefore, additional sessions for this group of patients would probably not have been appropriate. The patients were on a waiting list for CBR, and might not have been motivated enough to train in Qigong. This is confirmed in their reports of high frequency of complementary (one-fifth) and conversational (one-third) treatments outside the Stress Clinic during the intervention period, which might have affected our results. This is a problem in RCT, where patients with severe exhaustion tend to search for additional treatments (7, 8). Another reason for low compliance could be that Qigong as a method needs a longer time of practice to give positive experiences. Improvements over time in both intervention and control group, as well as lack of between-group differences could also indicate that improvements and recovery are due to sick leave and elapsed time and not related to therapeutic actions. Recovery could also have been strengthened by the attention given by referral to the Stress Clinic and a sense of care being taken of them. Patients in both groups were offered basic care at the Stress Clinic. In most cases this included follow-ups by the physician, who also gave general advice and support. All patients in the study participated in clinical examinations and answered questionnaires during the intervention period. Furthermore, the patients planned to start a CBR programme after finishing the Qigong study. Looking forward to the CBR programme could also have contributed to their recovery.

The patients reported high levels of burnout at randomization and one of the inclusion criteria was an average score ≥4.0 on the SMBQ. The decision to choose an SMBQ cut-off point of 4.0 was based on experiences from an earlier study (8). The same cut-off has also been used in another study (29). Despite the improvements found in both groups during the intervention period, it could be discussed if the improvements are of clinical importance. After the intervention period the patients still reported high levels of psychological distress with a median SMBQ score ≥ 5.0. A CIS score exceeding 76 has been shown to predict future sick-leave or work disability. All patients in this study scored above that level after the intervention period, and approximately 25% of them reached or exceeded the mean score in chronic fatigue patients (score 113) (30). The severity of the patients' mental disorder can also be appreciated by their HADS questionnaire scores. A score of 11 or greater is suggested for diagnosis of both anxiety disorder and depression (23). Using this cut-off score, more than 25% of the patients in both groups would be classified as mentally disordered after the intervention. Our patients also experienced poorer HRQoL (particularly in the MCS score) than rheumatoid arthritis patients (31) and women with coronary artery disease (32).

Physical capacity was measured as the time to walk 2 km. A walking speed corresponding to a maximal heart rate of 80% or more has been shown to give the most reliable estimate of maximal aerobic power in middle-aged adults (33). In this study the patients walked too slowly to calculate a fitness index (34). The increase in physical capacity after the intervention period was not clinically important, but might be a result of lessening of burnout. The recommended physical activity for healthy adults aged 18–65 years is moderate-intensity endurance physical activity for at least 30 min for 5 days a week (35) or 10,000 steps/day (36). At baseline, 60% of the burnout patients reached the recommended activity level of 30 min or more per day. However, the intensity of the reported activity might have been low. The relatively high level of physical activity by the patients could be a result of an emphasis on the importance of daily physical activity from both society and Stress Clinic personnel. Another reason for the fairly high activity, despite experienced exhaustion, could be the high levels of anxiety experienced by burnout patients. Restlessness is a common symptom in patients with anxiety (37), and could result in a high level of physical activity. Further studies are needed to investigate subgroups of burnout patients. Some patients may need to increase physical activity, while others may need to decrease their activity level.

The patient's dynamic balance was comparable to that of other healthy individuals and better than seen among patients with whiplash-associated disorders and those with prolonged musculoskeletal disorders (27). Static balance was poorer for the patients in this study when compared with healthy women and men (26). Reasons for this could be that burnout patients have high muscular tension that results in poor static balance. Furthermore, Qigong movements do not specifically train for static balance or standing on one leg.

In a recently published meta-analysis Richardson & Rothstein (38) criticized occupational stress management intervention programmes as being based mainly on psychological variables. A strength of the current study is that we assessed psychological variables, HRQoL, perceived relaxation, and physical measurements.

In conclusion, a 12-week intervention of twice weekly Qigong had no additional benefit above basic care in burnout patients. Time lapses and basic care might be important factors, as patients in both groups improved in psychological variables, HRQoL, perceived relaxation and physical measurements during the intervention period.

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