



The Effects of a Video Guided Daily Tai Chi Routine on Stress in Cancer Survivors

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Background

Growing population of cancer survivors with high levels of stress

- Increasing number of cancer survivors: 43.8 million worldwide (IARC, 2018).
- Cancer related late and long-term consequences (e.g., fatigue syndrome, sleep disorders, poor quality of life) lead to high levels of stress (Lengacher et al., 2009; Ni et al., 2019).

Previous research: Positive effect of Tai Chi on cancer related symptoms

- Tai Chi: multi-component intervention, in which physical postures, focused attention and controlled breathing are integrated to achieve relaxation.
- Positive effect of mind-body intervention Tai Chi on some of cancer related late and long-term symptoms (Zeng, Xie & Cheng, 2019; Ni et al., 2019).
- Research recommendation: Investigation of the optimal dosage (i.e., frequency, duration and intensity) of Tai Chi practice, and the evaluation of cognitive and emotional measures (i.e., stress) as mechanisms of the effect of Tai Chi (Wayne et al., 2018).

Present study: Effect of daily Tai Chi routine on perceived stress and current mood state of cancer survivors

- Aim of present study: Examination of the effect of an easy to use daily ten-minute Tai Chi routine, conducted over a period of three weeks, on the subjectively perceived stress and current mental state of cancer survivors.

Hypothesis:

In the intervention group, in which the Tai Chi routine is performed, positive effects on the perceived stress and the current mood state are higher than the effects in the active control group, performing the mobilization routine.

Method

Participants

The participants, $N = 14$ cancer survivors ($M_{age} = 58.6 \pm 8.7$), were randomly assigned to an intervention group of $n = 9$ (male = 0, female = 9) and an active control group of $n = 5$ (male = 1, female = 4).

Intervention

Both routines were guided via an instructional video (see QR Codes)

 Intervention group (Tai Chi): daily ten minutes Tai Chi routine, which included three different sets of motion with a focus on guided breathing.

 Active control group (Mobilization): daily ten minutes mobilization routine, which provided movement sequences with the same intensity as the Tai Chi routine, but without further guidance of breathing or attention.

Measurements (via App "RealLife Exp")

- Perceived Stress: Perceived Stress Questionnaire (PSQ; Fliege, Rose, Arck, Levenstein, & Klapp 2001): pre and post intervention
- Mood State: Multidimensional Mood State Questionnaire (MDBF) (Steyer, Schwenkmezger, Nitz & Eid, 1997): two times per week, pre and post routine
- Evaluation of intervention (Dosage of intervention, workshop, App, video): post intervention

Procedure



Results

1) Perceived stress

In order to identify potential group differences, regarding perceived stress from pre to post intervention, repeated-measures ANOVAs were computed.

PSQ - Overall score:

No significant effects emerged, neither for the overall score, nor for the different subscales (*worries, tension, joy, demands*), $F_{overall}(1,11) = .13, p = .72, \eta^2 = .01$ (Figure 1).

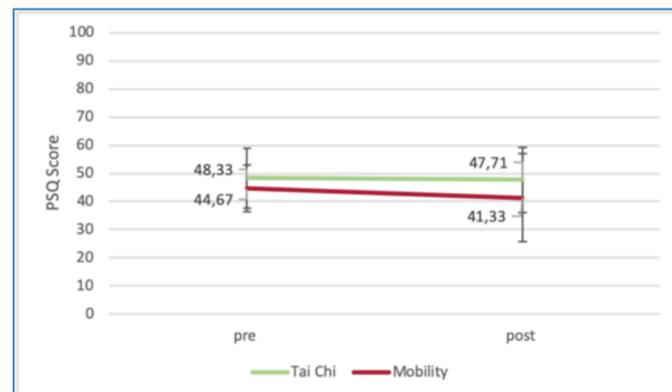


Fig. 1. PSQ Overall score pre and post intervention.

PSQ subscale joy:

The subscale *joy* shows a positive trend in both groups, Tai Chi: $M_{pre} = 53.33 \pm 19.84, M_{post} = 45.00 \pm 18.77$; Mobilization: $M_{pre} = 44.00 \pm 17.49, M_{post} = 29.33 \pm 21.39$, but no significance, $F_{joy}(1,11) = 1.23, p = .29, \eta^2 = .1$ (Figure 2).

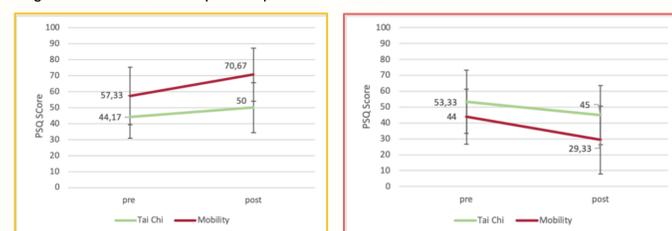


Fig. 2. PSQ scale Joy pre and post intervention. Fig. 3. PSQ scale Tension pre and post intervention.

PSQ subscale tension:

The subscale *tension* indicates tendencies of a decrease in both groups, Tai Chi: $M_{pre} = 44.17 \pm 13.30, M_{post} = 50.00 \pm 15.53$; Mobilization: $M_{pre} = 57.33 \pm 18.01, M_{post} = 70.67 \pm 16.73$, but no significance, $F_{tension}(1,11) = .24, p = .64, \eta^2 = .02$ (Figure 3).

2) Current mood state (MDBF)

Due to inconsistent response rates, inferential statistics could not be used for a pre/post routine comparison of the current mood state. Descriptive analysis (mean differences) showed trends of positive changes in the subscales *Good Mood - Bad Mood* and *Calmness - Restlessness* from pre to post intervention for both groups.

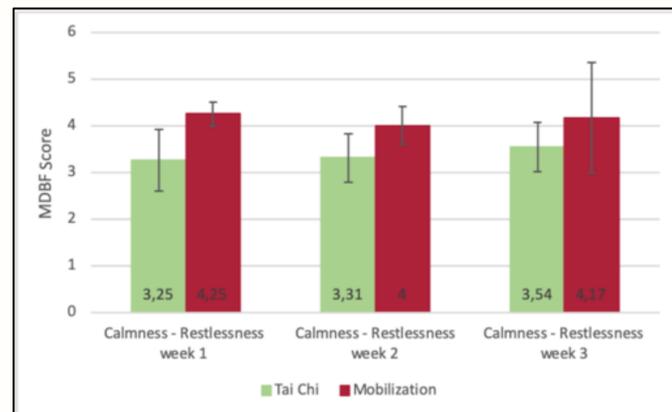


Fig. 4. Mean and standard deviation of the Calmness - Restlessness scale of the MDBF.

Discussion

No significant differences in the effect of relaxation routines for both intervention and active control group

There was no significant difference in the effect of the two relaxation routines (Tai Chi vs. Mobilization) on perceived stress. Due to the inconsistent response rates of the MDBF, the immediate effect of the intervention on mood could not be analysed.

Thus, we have to reject our hypothesis, that the positive effects of the relaxation routine on the perceived stress and the mood state are higher in the intervention group, conducting the multi-component Tai Chi routine, compared to the effects in the active control group, performing a body-centered mobilization routine.

Besides the small sample size, the generalizability of our results is limited due to the scheduling of our longitudinal study (resumption of work after Christmas break).

PSQ shows tendencies in Tai Chi and Mobilization group: enhancement of joy, reduction of tension

Slight changes in the subscales *joy* and *tension* indicate a possible influence of the relaxation routines on perceived stress. Therefore, relaxation techniques might rather show an effect on internal stress reactions, such as joy and tension, than on the perception of external stressors, such as demands (Fliege et al., 2001).

Easy to use design of intervention, which provides support of daily, autonomous health behaviour in aftercare

The evaluation of the intervention showed that all participants of the Tai Chi group ($n = 9$) claimed that the intervention had been 90% - 100% worthwhile in relation to the expenditure of time. The combination of workshop, daily reminders via App and video guided intervention, enable cancer survivors to establish and practise self-reliant health supporting behaviour.

References

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