Effects of a physical exercise protocol via telehealth on the quality of life and stress of women undergoing chemotherapy: a randomized clinical trial

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Objectives

To evaluate the effect of a telehealth-based exercise protocol on quality of life and stress in women undergoing chemotherapy.

Methodology

This randomized clinical trial was approved by the Research Ethics Committee (47329721.6.0000.5402) and registered with the ReBEC (RBR-9mqyz6j).

Sample: 44 women aged 48.36 ± 12.39 years old, diagnosed with solid tumors and undergoing chemotherapy treatment were randomized into groups: intervention group (IG, n=22) and a minimal intervention group (MIG, n=22). The IG performad basic exercise protocol (flexibility, muscle strength, cardiorespiratory conditioning, and balance) supervised by telehealth, 3 times a week, for 20 minutes/session, via video call. The MIG received guidance and follow-up to clarify doubts about physical activity.

Questionnaires used: EORTC QLQ-C30 (Global Health Status, Functional Health, and Symptom scales), where higher scores indicate better functioning and a greater symptom burden, and Lipp Stress Symptom Inventory for Adults (alertness ≥7 symptoms, resistance ≥4 symptoms, exhaustion ≥8 symptoms).

Statistical analysis: For the EORTC QLQ-C30: ANOVA adjusted for age, sex, and socioeconomic level. The Small Worthwhile Change (SWC) was used to identify clinically relevant individual changes, complementing the statistical test. Changes calculated as post-pre were used for the functional and global health scales, and pre-post for the symptoms scale in order to maintain standardized interpretation (positive: improvement, negative: worsening). In the Lipp inventory, descriptive analyses of the frequencies of stress phases were used at pre- and post-intervention times. To compare the proportions between the two time points, the chi-square test was used ($p<0.05$).

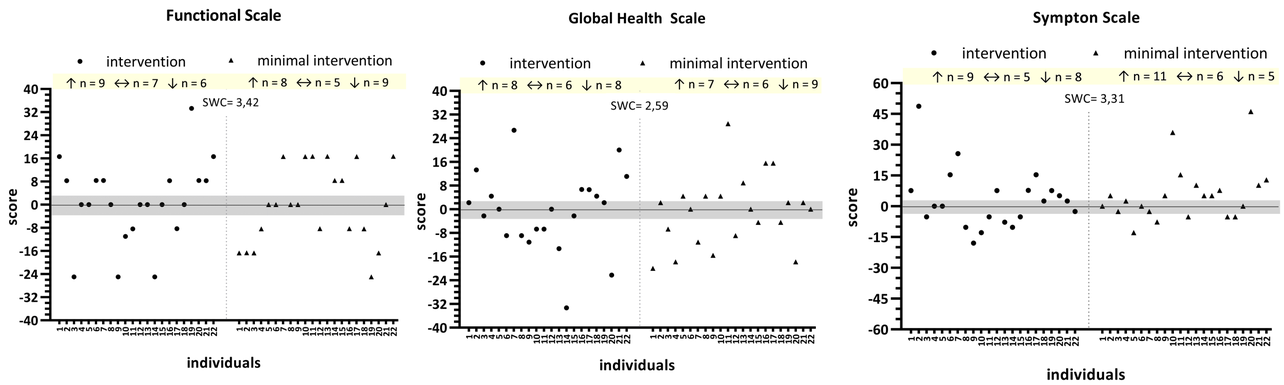
Results

The telehealth-based exercise protocol did not show statistically significant differences in quality of life between the groups. A possible explanation would be the fact that during chemotherapy, patients' quality of life tends to deteriorate regardless of the treatment. However, when evaluating the SWC, we noted slight improvements and maintenance in the domains of the functional scale in the IG, as well as in the global health scale. The maintenance of quality of life is considered a positive outcome, suggesting that the applied protocol may help mitigate the adverse effects of chemotherapy. When observing the stress phases before and after 12 weeks of intervention, it is noted that the IG participants only experienced phase changes in exhaustion, while the GMI had participants who moved from the early worrying phases to the exhaustion phase. These findings suggest that the exercise protocol may have a more pronounced effect in the initial stages of stress.

Conclusion

The study demonstrated that the exercise protocol applied through telehealth can help maintain or improve quality of life and in the initial phases of stress in this population.

Figures 1, 2, and 3. Individual variation in quality of life outcome (EORTC-QLC 30) of participants in the intervention and minimal intervention groups in relation to SWC.



Legend: N: number; SWC: Smallest Worthwhile Change.

Table 1. Frequencies of variables from the Lipp's Stress Symptoms Inventory for Adults at pre- and post-intervention in the intervention.

Variables	Frequency (%) Intervention group (n=22)			Minimal intervention group (n=22)		
Lipp's Stress Symptoms Inventory for Adults (Lipp)	**Pre**	**Post**	**p-value**	**Pre**	**Post**	**p-value**
no significant symptoms	14 (63,6)	12 (54,5)	0.727	11 (50,0)	10 (45,5)	1.000
alarm phase	0	0	-	1 (4,5)	0	-
resistance phase	4 (18,2)	4 (18,2)	1.000	7 (31,9)	5 (22,7)	0.754
exhaustion phase	4 (18,2)	6 (27,3)	0.625	3 (13,6)	7 (31,8)	0.219

Legend: (%) percentage; p-value < 0.05

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