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Utilising a Combined Exercise and Counselling Program to Examine the  
Relationship Between Emotional Self-Efficacy and Physiological Improvements in  
Breast Cancer Survivors

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## ABSTRACT

Breast cancer diagnosis in women has increased in recent years, though medical progress has helped more patients become survivors rather than victims. With cancer diagnosis and treatment, however, comes a host of psychological and physical side effects that must be addressed. Research has found exercise and counselling may decrease the detrimental effects of breast cancer, but programs have typically utilised these modalities separately. As psychosocial issues appear correlated with physical health, it is imperative to examine the mind-body connection and explore the benefits of a combination exercise and counselling program. One psychological variable of interest is emotional self-efficacy, which relates to how capable one is of recognising and regulating emotions and may influence overall well-being and survival. This study explored if participation in such a program improved emotional self-efficacy and physiological health, and if self-efficacy levels correlated with other variables.

A 20-week intervention was utilised, consisting of two phases. During the first eight weeks, participants (n=19) were randomised among four groups: exercise-only (Ex; n=5), counselling-only (C; n=5), exercise and counselling (ExC; n=5), or usual care control (UsC; n=4). After these 8 weeks in separate intervention groups, all women were enrolled in exercise and counselling for the remaining 12 weeks of the 20-week study. Emotional self-efficacy and physiological parameters (cardiorespiratory endurance, upper and lower body strength, and flexibility) were assessed at baseline, 8 weeks, and 20 weeks. Non-parametric testing was utilised to examine between-group and within-group changes in the variables of interest.

Results indicated all groups were balanced at baseline for all parameters except age and radiation treatment. Eight-week findings indicated C, E, and ExC all improved emotional self-efficacy when compared to UsC ( $p=0.052$ ), with the greatest score improvement observed in ExC (median=17.3). This finding suggests a program utilising both exercise and counselling may be most beneficial for improving self-efficacy. Additionally, both Ex and ExC improved in the physiological variables of interest compared to C and UsC, though only the increase in upper-body strength reached statistical significance ( $p=0.010$ ). At the end of the 20 weeks, once all participants had undertaken at least 12 weeks of exercise and counselling, no

significant differences remained between groups. These results indicate a catch-up effect occurred, with 12 weeks of exercise and counselling sufficient to produce beneficial changes. No correlations were observed between adherence and emotional self-efficacy, while negative correlations were observed between baseline emotional self-efficacy scores and both overall self-efficacy changes and flexibility changes. No adverse effects or new or worsened cases of lymphoedema resulted from participation in the 20-week program.

Results from this study suggested combining exercise and counselling benefits both physical and psychosocial parameters, improving emotional self-efficacy more than exercise or counselling alone, with significant improvements achieved in a short time. Additionally, those with low emotional self-efficacy may have the most to gain from such an intervention. Findings from this study increased knowledge on the efficiency of a combined exercise and counselling program on addressing both physical and psychological side-effects of breast cancer. These findings can provide guidance for the implementation of such programs in the healthcare setting. Assisting post-treatment breast cancer patients to strengthen both their minds and bodies may help improve their overall quality of life and, ultimately, survivorship.

## DECLARATION

*I certify that this thesis does not, to the best of my knowledge:*

- (i) contain any material accepted for award of any other degree or diploma at another institute of higher education;*
  - (ii) include any material previously published or written by another person, except where due reference is made in the text; or*
  - (iii) contain any defamatory material.*
-

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