

EXERCISE PROGRAM TO IMPROVE FATIGUE, ANXIETY, AND DEPRESSION OF PEOPLE WITH GASTRIC CANCER: A RANDOMIZED CONTROLLED PILOT STUDY

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INTRODUCTION

Gastrectomy is the primary surgical treatment for gastric cancer. However, patients often experience a decrease in physical activity and emotional distress following surgery. Cancer patients often suffer from emotional distress but do not meet the clinical criteria for anxiety and depression. Exercise training for patients with cancer is recommended by the professional healthcare system. Exercise is seen as an adjunct treatment to improve fatigue, anxiety, and depression.

AIM

The benefits of exercise for fatigue and depression in patients with gastric cancer remain unclear. This study examines the association between the maintenance of regular exercise at a recommended level and fatigue, anxiety, and depression in patients with gastric cancer during treatment.

METHOD

This study employed a parallel two-arm (1:1 ratio) from randomized controlled trials. In total, 28 patients were assigned to an experimental group (EG) or control group (CG).

- The exercise component participated in a **12-week** walking program that comprised moderate-intensity walking for **40 min per session**, with **3 sessions per week**.
- The Brief Fatigue Inventory-Taiwan (BFI-T) and the hospital Anxiety and Depression Scale (HADS) were used to measure the level of the patient's symptoms and were applied to measure symptoms at baseline and post-intervention.

RESULTS

All enrolled participants were followed from November 10, 2020, to July 15, 2021.

- A total of 28 patients with gastric cancer were recruited. Demographic data and disease characteristics are presented (Table 1).
- Table 2 shows the baseline data for the experimental group (EG) and the control group (CG).
- Figure 1 shows the fatigue scores of the two groups. The fatigue level of the experimental group (EG) showed a decreasing trend after the exercise intervention.
- We used generalized estimating equations (GEE) to examine fatigue and HADS scores between EG and CG (Table 3).
- Generalized estimating equation analysis showed that there were no significant differences in fatigue, anxiety, and depression after the exercise intervention, but all participants had no complications or injuries during exercise and reported that they increased their physical activity during exercise and felt happy.

Table 1. Demographic data and disease characteristics of all participants (N = 28)						
Variable	Total n = 28	Experimental group n = 14	Control group n = 14	t/χ ²	p	
Age (years)	58.89 (11.06)	60.21 (11.50)	57.57 (10.86)	-0.625	0.537	
Median	59	65.50	61.00			
Range	36-72	40-72	36-70			
Education (n, %)	23 (82.1)	12 (85.7)	11 (78.6)	2.958	0.707	
High school and below	5 (17.9)	2 (14.3)	3 (21.4)			
College and above				3.743	0.053	
Sex (n, %)						
Male	17 (60.7)	11 (78.6)	6 (48.9)			
Female	11 (39.3)	3 (21.4)	8 (57.1)	0.144	0.705	
Employed (n, %)						
Yes	15 (53.6)	7 (50.0)	8 (57.1)			
No						
Marital status (n, %)						
Married	22 (78.6)	12 (85.7)	10 (71.4)	3.515	0.319	
Single, divorced, and widower	6 (21.4)	2 (14.3)	4 (28.6)			
Clinical cancer stage (n, %)						
I & II	13 (46.4)	7 (50.0)	6 (42.9)	4.377	0.224	
III & IV	15 (53.6)	7 (50.0)	8 (57.1)			
Treatment status (n, %)						
On treatment	19 (67.9)	10 (71.4)	9 (64.3)	5.578	0.472	
Off treatment	9 (32.1)	4 (28.6)	5 (35.7)			
Surgery (n, %)						
Laparoscopy	11 (39.3)	3 (21.4)	8 (57.1)	3.743	0.053	
Open	17 (60.7)	11 (78.6)	6 (42.9)			
Surgery type (n, %)						
Subtotal gastrectomy	22 (78.6)	11 (78.6)	11 (78.6)	0.000	1.000	
Total gastrectomy	6 (21.4)	3 (21.4)	3 (21.4)			
Karnofsky performance score						
Mean (SD)	88.57 (3.56)	88.57 (3.63)	88.57 (3.63)	0.000	1.000	
Range	80-90	80-90	80-90			
*p < 0.05						

Table 2. Fatigue, Anxiety, and Depression for the experimental and control groups at baseline (N = 28)					
Variable	Total n = 28	Experimental Group n = 14	Control Group n = 14	t	p-value
	Mean ± SD	Mean ± SD	Mean ± SD		
Fatigue					
Fatigue severity	3.07 ± 2.33	2.76 ± 2.00	3.38 ± 2.65	0.697	0.492
Fatigue interference	1.68 ± 1.75	2.00 ± 1.62	1.37 ± 1.88	-0.953	0.349
HADS					
Anxiety	4.89 ± 4.07	5.93 ± 4.94	3.86 ± 2.79	-1.366	0.184
Depression	4.364 ± 3.09	5.21 ± 3.21	4.07 ± 2.59	-0.980	0.336
HADS (Hospital Anxiety and Depression Scale)					

Table 3. Scores of generalized estimating equation analysis for the fatigue, anxiety and depression of the experimental and control groups (N = 28)

Predictive variables	Fatigue			Anxiety			Depression		
	Beta	95% CI	p	Beta	95% CI	p	Beta	95% CI	p
Intercept	2.04	1.05, 3.03		3.88	1.96, 5.78		4.07	1.83, 6.26	
Group (experimental)	0.21	-1.18, 1.61	.764	2.07	-0.82, 4.76	.131	1.14	-1.95, 4.24	.469
Time (6 month)	0.25	-0.98, 1.48	.698	0.18	-2.34, 1.98	.869	0.78	-1.66, 3.21	.532
Group × Time	0.13	-1.88, 1.52	.881	0.65	-3.73, 2.43	.690	0.01	-3.44, 3.50	.994

Generalized estimating equations were used for repeated measurements and the AR(1) correlation structure. All models were adjusted for days since diagnosis.

*Reference group: control group.

*Reference group: baseline (T1).

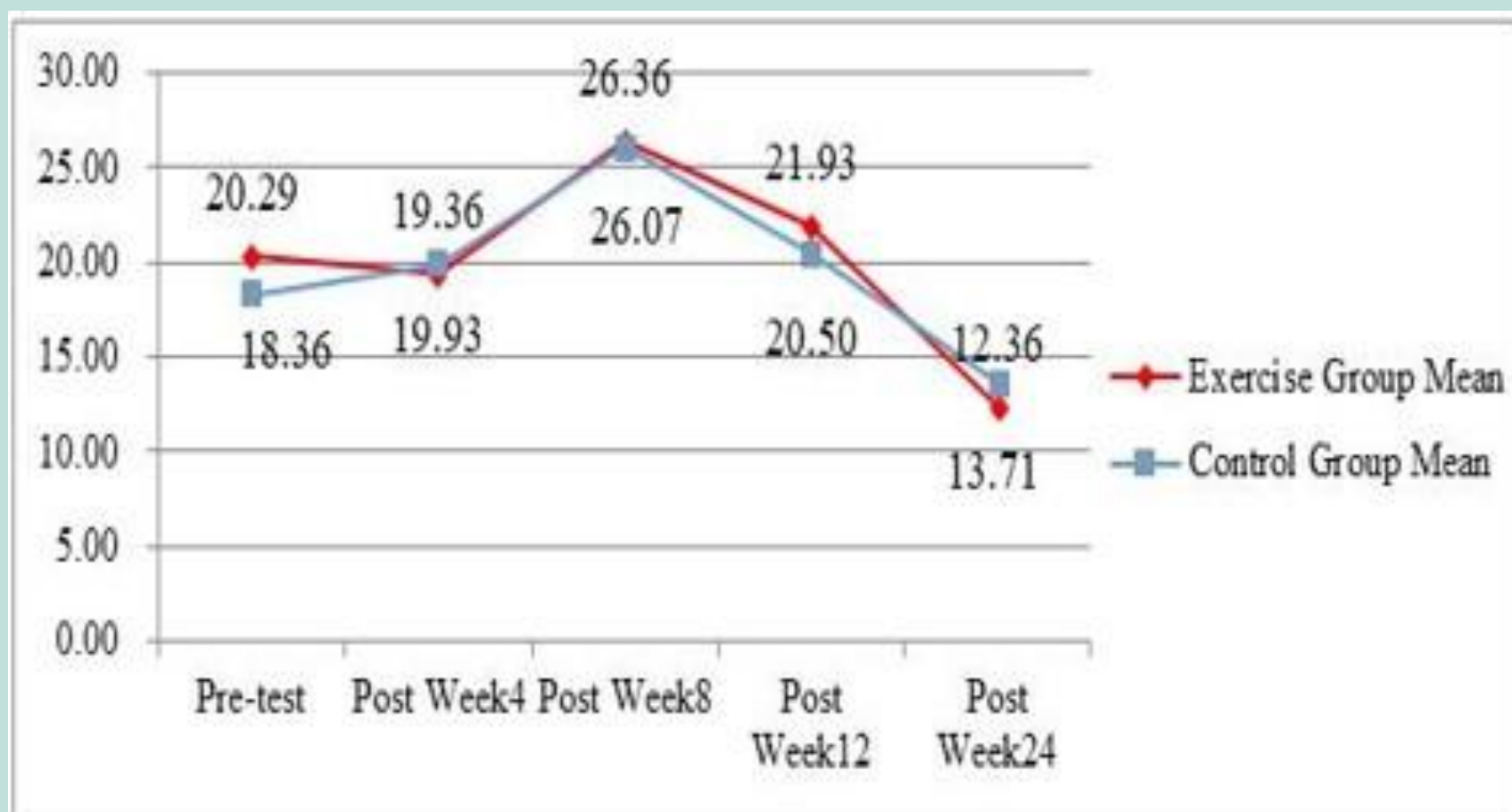


Fig1. Exhaustion degree of the two groups

CONCLUSIONS

- For patients with gastric cancer who have undergone gastrectomy, a short-term structured home exercise program is feasible, beneficial, and safe. Large-scale studies are needed to verify the effectiveness of the intervention for gastric cancer.
- In the future, under clinical promotion, physical therapists should be combined to give exercise planning to patients before admission to promote physical activity and improve physical fitness.

KEYWORDS

Anxiety, Exercise, Gastric Cancer

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