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Research Paper

Psychoeducational Intervention on Mental Adjustment in Gastrointestinal Cancer Patients: A Randomized Clinical Trial

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ABSTRACT

Background: Patients with gastrointestinal (GI) cancers often experience psychological distress that impacts adjustment and quality of life (QoL). This study evaluated the effectiveness of a brief psychoeducational intervention in improving psychological outcomes in newly diagnosed GI cancer patients.

Materials & Methods: In this randomized clinical trial, 84 eligible patients out of 113 patients in a city in north of Iran in 2021 were assigned to either an intervention group (n=42) or a control group (n=42). The intervention group received four 45-minute psychoeducational sessions led by a psychiatry resident and a psychologist. The control group received standard care and was wait listed for the intervention. Psychological adjustment, anxiety and depression, and QoL were assessed before and after the intervention using the Persian versions of the mini-mental adjustment to cancer (Mini-MAC) scale, hospital anxiety and depression scale (HADS), and EORTC QLQ-C30, respectively. We used independent t-test, Mann–Whitney U test, chi-square /Fisher's exact tests, and generalized estimating equation model to analyze the data using SPSS software, version 22.

Results: Sixty-eight participants completed the study. The intervention group showed significant improvements across all Mini-MAC subscales and reductions in anxiety ($r=0.94$, $P<0.001$) and depression ($r=0.92$, $P<0.001$). QoL scores improved significantly in several domains, including global health ($r=0.92$, $P<0.001$) and emotional functioning ($r=0.94$, $P<0.0001$).

Conclusion: The intervention enhanced psychological adjustment and well-being in GI cancer patients. Integrating brief psychoeducational support into oncology care may benefit patients, particularly in low-resource settings.

Keywords: Gastrointestinal (GI) neoplasms, Adaptation, Mental health, Anxiety, Depression, Quality of life (QoL)

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Highlights

• A brief four-session psychoeducational intervention significantly improved mental adjustment in newly diagnosed GI cancer patients.

• The intervention led to substantial reductions in anxiety and depression scores compared to standard care.

• QoL improved across multiple domains, including global health, emotional, cognitive, and social functioning.

• The psychoeducational program enhanced adaptive coping styles, such as fighting spirit and reduced maladaptive coping patterns.

• Findings support integrating brief, low-cost psychoeducational support into oncology care, especially in low-resource settings.

Introduction

Cancer is a major global public health concern, with gastrointestinal (GI) cancers accounting for nearly one-third of all cancer cases and deaths worldwide [1, 2]. GI cancers, which include malignancies of the esophagus, stomach, and colorectum, are among the most prevalent forms of cancer. Despite having distinct clinical features, these cancers share certain commonalities.

According to GLOBOCAN 2020 (Global Cancer Statistics), GI cancers, such as colorectal, gastric, and esophageal cancers constituted 18.7% of new cancer diagnoses and 22.6% of cancer-related deaths in 2020, making them some of the most common and lethal cancer types globally. However, their geographic distribution, associated risk factors, and prevention strategies vary significantly between Western and Eastern regions [3].

Treatment for GI cancers often involves surgery and chemotherapy, both of which can adversely affect patients' mental health by increasing levels of anxiety and depression, ultimately impacting their overall quality of life (QoL). To mitigate these challenges, various psychological interventions have proven effective in reducing anxiety and depression among GI cancer patients. One such approach is psychoeducational intervention (PEI), which aims to provide patients with both disease-related information and emotional support [4].

PEI combines patient education with emotional and psychosocial support. This approach is typically delivered through lectures, group discussions, and reading materials, led by trained professionals. While education forms the foundation of PEI, it extends beyond standard educational interventions by incorporating psychotherapeutic techniques, such as stress management, relaxation, problem-solving, and positive thinking. For an intervention to qualify as psychoeducational, the educational component must play a central role in its structure and content [5]. In the present randomized clinical trial, we aimed to evaluate the effectiveness of PEI in improving the mental adjustment of newly diagnosed patients with GI cancers.

Materials and Methods

Study design

This randomized clinical trial was conducted in oncology clinics in Rasht, Iran in 2021. The participants were individuals recently diagnosed with GI cancers by an oncologist and scheduled for treatment. Written informed consent was obtained from all participants prior to enrollment. The study was approved by the Ethics Committee of Guilan University of Medical Sciences and adhered to the ethical standards outlined in the Declaration of Helsinki (2013). As this was an educational and non-therapeutic intervention, IRTC registration was not required according to committee's official statement.

Participants

A total of 113 patients were assessed for eligibility. Of these, 29 were excluded because they did not meet the inclusion criteria or met at least one of the exclusion criteria. The inclusion criteria required participants to have a confirmed first-time diagnosis of GI cancer, to be in the early stages of treatment, to have an expected prognosis of at least 12 months, to be literate, to be aged between 18 and 65, and to be aware of their cancer diagnosis.

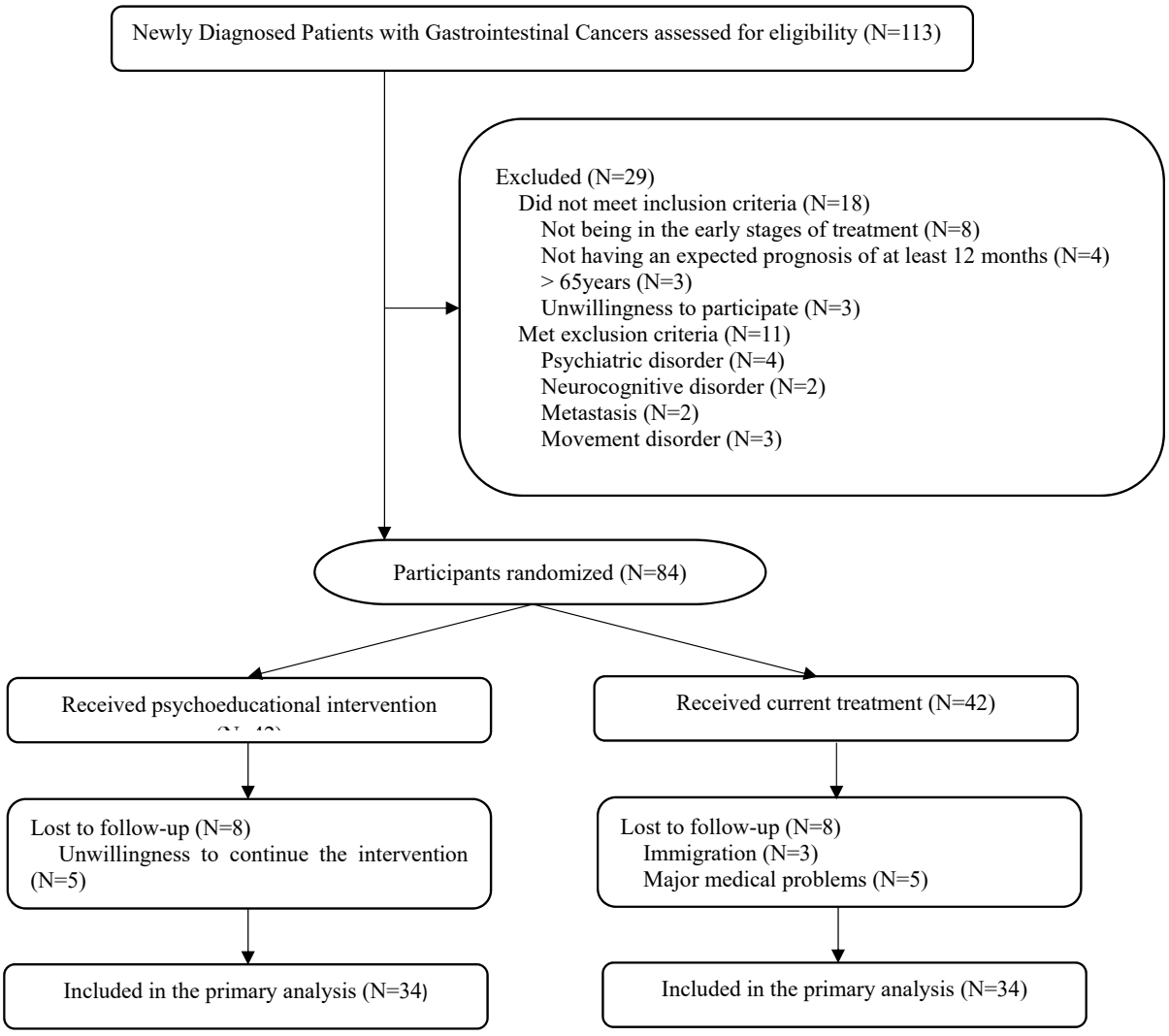

Figure 1. Flow diagram showing the flow of participants through each stage of the trial

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Exclusion criteria were applied to patients with major psychiatric disorders, including depression, anxiety disorders, schizophrenia, or bipolar disorder, as determined by their medical history and DSM-5 criteria. Six participants were excluded based on these criteria at the discretion of the project psychiatrist. Patients with disabling physical illnesses were prevented from participating in the intervention sessions.

Before randomization, patients who participated in the study (n=84) completed a baseline assessment covering age, marital status, education level, employment status, cancer type, cancer stage, and three study questionnaires administered by a psychologist trained for the project. Then, they were randomly assigned to either the intervention or control group using block randomization. A biostatistician generated the randomization sequence using the create randomized lists [6], producing 21 blocks with a block size of 4. Group allocation was implemented using sealed, opaque envelopes and post-intervention reassessment was performed by the project psychologist. A flowchart of participant flow is shown in Figure 1.

The interventions were implemented by a final-year psychiatry resident and a clinical psychology master's degree holder under the supervision of a project psychiatrist. The control group received standard care throughout the study and was placed on a waiting list for a short-term psychological education intervention, which was offered after the study's completion.

The sample size was calculated based on a previous trial [7], which indicated that 31 participants per group would be required. Considering the typical attrition in longitudinal studies, this number was increased to 34 per group, resulting in a target of 68 participants. Given the availability of a larger number of eligible patients, 84 individuals were enrolled in the study and received the psychoeducational intervention.

Instruments

Both study groups were asked to complete the mini-mental adjustment to cancer (Mini-MAC) scale [8], the European organization for research and treatment of cancer QoL questionnaire (EORTC QLQ-C30) [9], and the hospital anxiety and depression scale (HADS) [10].

Mini-MAC scale

This scale was validated in cancer patients within the study's cultural context. This self-report questionnaire consists of 29 items that assess patients' psychological adjustment to cancer. It includes five subscales: Fighting spirit, fatalism, helplessness/hopelessness, anxious preoccupation, and cognitive avoidance. A higher score on each subscale indicates stronger use of that coping strategy. The Persian version was validated by Kaviani and Seyfourian in 2015, demonstrating acceptable reliability and validity, within the study's cultural context, indicating that this scale has the necessary power to measure dimensions of psychological adjustment to cancer. Cronbach's α for the subscale of helplessness/hopelessness was 0.94, for cognitive avoidance was 0.86, for preoccupation was 0.90, for fatalism was 0.77, for fighting spirit was 0.80, and for the total scale was 0.86 [8].

European organization for research and treatment of cancer QoL questionnaire (EORTC QLQ-C30)

The EORTC QLQ-C30 is a 30-item cancer-specific tool that assesses global health status, functional domains (physical, role, emotional, cognitive, and social), and symptom burden. A higher score in the five functional domains of general, physical, role functioning, emotional, cognitive, and social functioning, and a lower score in physical symptoms, indicate a better QoL in patients. The Persian version was validated by Safaee and Dehkordi in 2007, demonstrating acceptable reliability and validity within the study's cultural context. In this study, Cronbach's α was 0.935 [9].

HADS

The HADS is a widely used screening tool for assessing anxiety and depression in patients with physical illnesses. It comprises 14 items, divided into two subscales: Anxiety (7 items) and depression (7 items). A higher score definitely indicates the presence of an anxiety or depression disorder. Each subscale contains seven questions using a four-point Likert scale (0-3 points) with a maximum score of 0-21. A score of less than seven indicates the absence of an anxiety or depressive disorder. A score of 8-10 suggests the possibility of an anxiety or depressive problem, and a score above 11 definitely indicates the presence of an anxiety or depressive disorder. The Persian version was validated by Kaviani et al. in 2009 and demonstrated good reliability and construct validity in the study's cultural context. Cronbach's α in this study was 0.77 for depression and 0.81 for anxiety. [10]. It has since been widely applied in both hospital and outpatient settings.

Intervention process

The short-term psychological education intervention consisted of four 45-minute sessions conducted by a team comprising a psychiatry resident, under the supervision of a psychiatrist and a psychologist. In preparing the content of the four-session psychological education sessions, past studies were used, reviewed, modified, and approved by a psychologist and two psychiatrists. In most of these studies, the short-term structured intervention by Fawzy and Fawzy in newly diagnosed cancer patients was used as a basis for preparing the sessions [11-15]. The sessions were held in the psychiatrist's office in a well-equipped room with proper ventilation, a TV, and a monitor. Chairs were spaced at least one meter apart to ensure comfort and safety. At the conclusion of the sessions, patients and their families were provided with an educational package containing materials from the psychological sessions. This package allowed them to revisit the information during different stages of treatment, serving as a supportive guide throughout their cancer journey. Additionally, many patients stayed in contact with one another after the sessions, and some requested further sessions, either individually or for their family members, particularly their children, beyond the scope of the study (Table 1).

Before the sessions began, the psychiatrist evaluated participants for serious psychiatric disorders based on DSM-5 criteria. When necessary, psychiatric support was provided to prevent sample attrition following enrollment. Those who entered the study in the interven-

Table 1. Summary of the training sessions

Sessions	Titles	Key Concepts	Exercises/ Actions
Session 1	Commitment & acceptance	• Understanding acceptance • Present moment awareness • Body and sensory awareness	• Daily commitment to practice • Body scan
Session 2	Fight-or-flight response	• Stress mechanism in the body • Sympathetic vs parasympathetic system	• Identifying stress symptoms across 7 domains
Session 3	Breathing system	• Link between breathing and anxiety • Returning attention to breath	• Abdominal breathing • 3-second inhale/exhale
Session 4	Understanding emotions	• Common emotional reactions to cancer • Importance of support networks	• Emotional expression • Asking for help • Maintaining social connections
Session 5	Thinking & cognitive distortions	• Types of cognitive distortions • Impact on anxiety and depression	• Challenging thoughts • Replacing with healthier thinking

tion and control groups were advised to refer to a psychiatrist if they experienced a serious disorder but no serous disorder was reported.

The first session was conducted individually with patient and his/her family, lasting 45 minutes. During this session, an oncologist, a psychiatry resident, and a psychologist provided detailed information about the patient's specific cancer type, staging, treatment options, risks of recurrence, and potential side effects of treatments. They also addressed questions from the patient and his/her family. The psychiatry resident discussed the psychological impact of cancer and its treatments, helping the patient understand and prepare for the emotional challenges associated with the diagnosis. Additionally, the study's objectives and the steps of the psychological intervention were thoroughly explained, ensuring that all questions were answered to provide clarity and reassurance.

The subsequent group sessions were conducted in groups of five participants, as previously described. The first group session focused on providing emotional support, discussing both the positive and negative aspects of the disease and teaching strategies for managing emotions and stress. Participants were reassured that feelings of distress and self-blame were natural reactions to their diagnosis.

At the end of the session, a short educational video featuring a cancer survivor was shown. In the video, the survivor shared his/her personal journey, discussing the disease, treatment process, and coping with side effects. Additionally, a patient who had fully completed the treatment process and was in the recovery stage attended the session in person. They shared their experiences from diagnosis to treatment, offering firsthand insights to the participants. Group members also exchanged practical advice on managing chemotherapy side effects, maintaining proper nutrition, and preparing for surgery.

In the second group session, participants were encouraged to openly discuss their concerns, anxieties, and emotions. The session focused on enhancing stress and anger management strategies, with an emphasis on teaching relaxation techniques. Cognitive distortions, such as catastrophic thinking, overgeneralization, and negative forecasting, were identified and explored. The psychologist provided practical demonstrations of relaxation and breathing techniques, allowing each participant to practice individually while receiving personalized guidance and corrections.

At the end of the four sessions, participants received educational materials, brochures, presentations, and videos, provided either on DVD or via Bluetooth, depending on accessibility.

In the final group session, feedback from the previous sessions was gathered, and a summary of the material covered was presented. By this stage, group members had developed a sense of familiarity and rapport, which facilitated discussions on the importance of social support networks and effective emotional expression. The session concluded with participants sharing their plans and aspirations, fostering a sense of hope and connection.

Participants were followed immediately after the intervention and completed the Mini-MAC scale, EORTC QLQ-C30, and HADS. Follow-up assessments were conducted by the resident and clinical psychologist at the clinic. Adherence to the intervention was monitored using attendance sheets, and participants attending at least 80% (1 session) of the sessions were considered adherent. All dropouts and their reasons were recorded.

Any psychological deterioration during follow-up was monitored, and participants requiring clinical psychological support were referred. The content for the four psychological education sessions was developed based on previous studies, which were reviewed, modified, and approved by a psychologist and two psychiatrists [7, 11-14]. Most of these studies utilized the structured short-term intervention developed by Fawzy and Fawzy for newly diagnosed cancer patients [15].

Statistical analysis

After data collection, the information was entered into SPSS software version 22 for analysis. Descriptive statistics (frequencies (percentages)) were used to describe qualitative variables. For variables that followed a normal distribution, the results were presented as Mean±SD, while those without normal distribution were expressed as median [interquartile range (IQR)]. Continuous variables with a normal distribution were compared using the parametric independent t-test, and variables without normality were compared using the non-parametric Mann–Whitney U test. Effect sizes were expressed as rank-biserial correlation (r). The chi-square or Fisher's exact test was applied to compare categorical variables. The generalized estimating equation (GEE) model was used to perform pairwise comparisons while controlling for confounding factors. The significance level for all tests in this study was set at $P<0.05$, with all tests being two-sided.

Results

A total of 68 patients with solid tumors participated in this study, with 34 assigned to the short-term psychological treatment group and 34 to the control group. The average age in the psychological treatment group was 54.85±10.39 years, while in the control group, it was 54.59±7.12 years (P=0.903). The percentage of males in the psychological treatment group (79.4%) was significantly higher than in the control group (55.9%) (P=0.038). In the psychological treatment group, 67.6% had less than 12 years of education, which was significantly higher than in the control group (44.1%) (P=0.048). In the psychological treatment group, 6 patients (17.6%) had esophageal cancer, whereas there were no cases in the control group. Conversely, the number of patients with gastric cancer was higher in the control group (7 patients, 20.6%) compared to the psychological treatment group (2 patients, 5.9%). The prevalence of other cancer types was similar in both groups (P=0.019). There were no significant differences between the two groups regarding age, employment status, and cancer stage (Table 2).

The results of the comparison of mental adjustment, depression, anxiety, and QoL scores of patients in the two studied groups are reported in Table 3.

As observed, there were no significant differences between the two groups in any of the sub-scales of patient mental adjustment before the intervention. However, after the intervention, significant differences were observed between the psychological treatment and control groups in all sub-scale ($P<0.0001$).

The median scores for anxiety and depression, as shown in Table 3, indicate that at baseline, participants' anxiety levels were higher than their depression levels. In the psychological education group, the median anxiety score decreased from 8 before the intervention to 3 after the intervention. Similarly, the median depression score in the same group decreased from 6 before the intervention to 2 after the intervention. There were no significant differences in anxiety or depression between the two groups before the intervention. However, after the intervention, significant differences were observed in both anxiety ($r=0.94$, $P<0.0001$) and depression ($r=0.92$, $P<0.0001$) scores between the two groups.

The median global health score in the psychological treatment group before the intervention was 9, which increased by 3 units after the intervention. In contrast, the control group had a median score of 8 (IQR: 6-8) before the intervention, and there was no significant change after the intervention. Patients in the psychological treatment group reported a significantly lower overall QoL score compared to the control group after the intervention ($r=0.92$, $P<0.0001$).

Before the intervention, there were no significant differences between the two groups in any of the QoL subscales. However, after the intervention, no significant changes were observed in the sub-scale scores for the control group. In the psychological treatment group, significant differences were observed in the scores for physical functioning ($r=0.48$, $P<0.0001$), role quality ($r=0.39$, $P=0.001$), emotional functioning ($r=0.94$, $P<0.0001$), cognitive functioning ($r=0.64$, $P<0.0001$), social relationship quality ($r=0.68$, $P<0.0001$), and physical symptom status ($r=0.78$, $P<0.0001$). The median changes before and after the intervention indicated that emotional functioning experienced the most significant reduction and subsequent improvement compared to other sub-scales. Notably, patients in the psychological

Table 2. Comparison of demographic information between the two groups

Demographic Information		Mean±SD/No. (%)		Statistics	P
		Psychological Treatment	Control		
Age (y)		54.10±85.39	54.59±7.12	0.123[b]	0.903
Gender	Male	27(79.4)	19(55.9)	4.3[a]	0.038
	Female	7(20.6)	15(44.1)		
Marital status	Single	1(2.9)	1(2.9)	0[a]	1
	Married	33(97.1)	33(97.1)		
Education (y)	<12	23(67.6)	15(44.1)	3.918[a]	0.048
	>12	11(32.4)	19(55.9)		
Occupation	Unemployed	6(17.6)	6(17.6)	4.463[a]	0.216
	Housewife	5(14.7)	12(35.3)		
	Retired	4(11.8)	4(11.8)		
	Others	19(9.55)	12(35.3)		
Type of cancer	Esophagus	6(17.6)	0(0)	9.961[a]	0.019
	Stomach	2(5.9)	7(20.6)		
	Small intestine	3(8.8)	1(2.9)		
	Large intestine	23(67.6)	26(76.5)		
Cancer stage	1	1(3)	1(2.9)	4.731[a]	0.193
	2	13(39.4)	21(61.8)		
	3	17(51.5)	12(35.3)		
	4	2(6.1)	0(0)		

[a]Chi-square test, [b]t-test.

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treatment group rated their overall health sub-scale score as worse after the intervention.

By including the demographic variables that initially showed significant differences between the two groups (gender and education) in the GEE model, the observed significance pattern was not altered.

Discussion

This study aimed to evaluate the effectiveness of a short-term psychoeducational intervention in improving mental adjustment among newly diagnosed GI cancer patients in northern Iran. A total of 68 participants were included, with 34 assigned to the intervention group and 34 to the control group.

Although randomization was properly conducted, baseline demographic differences were observed, particularly in gender and education level. In the intervention group, 79.4% of participants were male, compared to 55.9% in the control group. This disparity may reflect the fact that many men had work responsibilities outside the home, which gave them greater flexibility and access to attend the intervention sessions. In contrast, many female participants were housewives with household duties and childcare responsibilities, which may have limited their availability and ability to participate in scheduled group sessions. Furthermore, some women expressed discomfort in seeking psychological support beyond routine medical treatment, which may reflect the influence of sociocultural expectations around mental health. Additionally, women may be more accustomed

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Table 3. Comparing the mental adjustment, depression, anxiety, and QoL scores between the two study groups

Subscales (Scale Range)		Time	Median (IQR)		Mann-Whitney U Test	P	Effect Size[a]
			Intervention Group	Control Group			
Mini-MAC scale	Fatalism (5-20)	Pre-intervention	17 (15.5-19.25)	16 (13.0-17)	460.5	0.145	0.2
		Post-intervention	20 (18.75-20)	16 (14.0-17.25)	190	<0.0001	0.67
	Fighting spirit (4-16)	Pre-intervention	14 (12.0-16)	13 (10.75-14)	432	0.196	0.25
		Post-intervention	16 (15.0-16)	13 (11.0-14.25)	205.5	<0.0001	0.64
	Anxious preoccupation (8-32)	Pre-intervention	19 (16.0-22.5)	20 (17.0-26)	512	0.245	0.11
		Post-intervention	11 (9.0-13)	19 (16.50-24)	29	<0.0001	0.95
	Helpless/ hopeless (8-32)	Pre-intervention	12 (11.0-15.25)	13 (10.50-16)	487.5	0.196	0.16
		Post-intervention	8 (8.0-9.0)	13.5 (11.0-17.25)	57	<0.0001	0.9
	Cognitive avoidance (4-16)	Pre-intervention	15 (12.75-16)	13.5 (12.0-15.25)	398	0.141	0.31
		Post-intervention	15 (13.75-16)	13 (12.0-16)	431.5	0.047	0.25
HADS	Depression (0-21)	Pre-intervention	6 (4-10.25)	7 (4-9.25)	321.5	0.264	0.44
		Post-intervention	2 (1-4.25)	8 (4.75-12)	33	<0.0001	0.94
	Anxiety (0-21)	Pre-intervention	8 (4-12)	9 (5-12)	351	0.286	0.39
		Post-intervention	3 (2-4)	9 (6.5-13)	47	<0.0001	0.92
European organization for research and treatment of cancer QoL questionnaire	Global health (2-14)	Pre-intervention	9 (6.75-10)	8 (6-8)	459.5	0.084	0.21
		Post-intervention	12 (10-12)	8 (6-8.25)	48	<0.0001	0.92
	Physical functioning (5-20)	Pre-intervention	12 (10-14)	13 (11-15)	742.5	0.052	0.28
		Post-intervention	10 (9-12)	12.5 (11-14.25)	857.5	<0.0001	0.48
	Role functioning (2-8)	Pre-intervention	3 (2-4)	3 (2.75-4)	858.5	0.598	0.49
		Post-intervention	2 (2-2)	4 (3.75-5)	804.5	0.001	0.39
	Emotional functioning (4-16)	Pre-intervention	10 (7-12)	11 (9-12)	698.5	0.137	0.21
		Post-intervention	4.5 (4-6)	11 (9.75-12)	1121.5	<0.0001	0.94
	Cognitive functioning (2-8)	Pre-intervention	4 (2-5)	4 (3-4.25)	800	0.284	0.38
		Post-intervention	2 (2-3)	4.5 (4-6)	950.5	<0.0001	0.64
	Social functioning (2-8)	Pre-intervention	5 (3-6)	5 (4-6)	808.5	0.358	0.40
		Post-intervention	2 (2-4)	6 (5-7)	973	<0.0001	0.68
	Physical symptoms (13-52)	Pre-intervention	27 (22.5-33.25)	31 (24-35.5)	476.5	0.212	0.18
		Post-intervention	19 (16-24)	30 (23-34.75)	125.5	<0.0001	0.78

IQR: Interquartile range, [a]Rank-Biserial correlation.

to sharing their thoughts and emotions informally with family or peers, potentially reducing their perceived need for structured group sessions. In contrast, male participants may have felt a greater need for such sessions, as men are often less likely to discuss emotional issues openly in everyday contexts. Educational attainment also differed between groups, with a higher proportion of participants in the intervention group having less than 12 years of education (67.6% vs 44.1%). Those with higher education may have preferred individualized consultations or private support services. While randomization is designed to minimize baseline differences, such imbalances can occur by chance, especially in studies with relatively small sample sizes. In this study, although baseline differences were observed, we adjusted for these variables during the analysis, and they did not influence the final outcomes.

Post-intervention findings indicated significant improvements across all sub-scales of the Mini-MAC scale in the intervention group. Increases in fatalism and fighting spirit, along with reductions in anxious preoccupation, helplessness/hopelessness, and cognitive avoidance, suggest that the psychoeducational intervention promoted more adaptive coping styles. While the change in cognitive avoidance was less pronounced, it remained statistically significant (P=0.047). These findings support the potential of brief psychological interventions to enhance emotional adjustment in cancer patients.

The intervention also led to significantly lower levels of anxiety and depression in the intervention group compared to the control group (P<0.001). Improvements were further observed in multiple dimensions of QoL, including global health, emotional and physical functioning, role functioning, social relationships, and symptom burden (P<0.0001 across most sub-scales).

These findings are consistent with previous research. Wu et al. reported that psychoeducational interventions improved anxiety, depression, resilience, and QoL among cancer patients undergoing chemotherapy [16]. Similarly, Cipolletta et al. found that such interventions reduced emotional distress, enhanced coping strategies, and improved overall well-being [17].

Zhang et al. and Habeeb also highlighted the effectiveness of group-based psychoeducation in reducing anxiety and improving psychological functioning in cancer populations [18, 19].

Setyowibowo et al. demonstrated that structured psychoeducation, tailored to cultural contexts, reduced diagnostic delays and improved psychosocial outcomes in low-resource settings [20].

In addition, Körner et al. found that self-administered interventions improved psychological well-being over time, although they noted higher dropout rates among less-educated participants [21]. Nguyen et al. also reported that psychoeducation helped reduce sleep disturbances, fatigue, anxiety, and depression in cancer patients, further supporting its broad applicability [22].

Conclusion

In conclusion, this study demonstrated that short-term psychoeducational interventions could have a significantly positive impact on cancer patients undergoing treatment, who often face both physical and psychological challenges. Following the intervention, levels of anxiety and depression decreased, while mental adjustment and overall QoL improved. These findings highlight the value of integrating psychological support into routine oncology care to enhance patient well-being during a vulnerable period.

Limitations

This study has several limitations. The relatively small sample size and strict eligibility criteria may limit generalizability and increase the chance of baseline group differences. Loss to follow-up due to medical issues, unwillingness to continue, or relocation has influenced group composition, such as sex and education. Although demographic effects were controlled in the modeling, they may have affected the results. Additionally, the single-center setting may affect the broader applicability of the findings.

We suggest that a future qualitative phenomenological study be designed to examine the coping styles and coping mechanisms of men and women newly diagnosed with GI cancer. We recommend that psychoeducational support programs and sessions be held for newly diagnosed patients.

Ethical Considerations

Compliance with ethical guidelines

All research procedures adhered to the Ethical Guidelines outlined in the 2013 Declaration of Helsinki. This study was approved by the n Ethics Committee of Guilan University of Medical Sciences, Rasht, Iran (Code: IR.GUMS.REC.1400.198).

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Authors contributions

Conceptualization and funding acquisition: Zahra Gol and Somayeh Shokrgozar; Supervision, methodology, and project administration: Somayeh Shokrgozar; Staging, diagnosis, introduction of patients: Fatemeh Nejatifar; Investigation: Zahra Gol and Zahra Nazari; Formal analysis: Roghaye Zare; Writing the original draft: Zahra Gol; Review, and editing: Somayeh Shokrgozar and Robabeh Soleimani.

Conflict of interest

The authors declared no conflict of interests.

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