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Effectiveness of a Structured Psychoeducational Intervention for Gynecologic Cancer Patients: A Randomized Controlled Study

Jinekolojik Kanser Hastaları için Yapılandırılmış Psiko-Eğitimsel Müdahalenin Etkinliği: Randomize Kontrollü Çalışma

ABSTRACT

This randomized controlled trial aimed to evaluate the effects of a structured psychoeducational program on illness perception, coping skills, psychological adjustment, and emotional distress in women diagnosed with gynecological cancer. A total of 49 patients with stage I–III gynecological cancer were randomly assigned to either the psychoeducation intervention group (n=22) or the control group receiving standard oncological care (n=27). The six-week group-based intervention was adapted from the Fawzy and Fawzy model and included cancer education, stress management, cognitive restructuring, emotional expression, and coping skills training. Pre- and post-intervention assessments were conducted using validated Turkish versions of the Mental Adjustment to Cancer Scale, Profile of Mood States, Hospital Anxiety and Depression Scale, Beck Depression Inventory, Illness Perception Questionnaire, and Stress Coping Styles Inventory. Non-parametric statistical analyses were employed. The intervention group demonstrated significant improvements in fighting spirit, problem solving, seeking social support, personal control, illness coherence, and mood, as well as significant reductions in helplessness, anxious preoccupation, avoidance coping, fatalism, anxiety, depression, emotional distress, and negative illness perceptions (all $p<.05$), with medium-to-large effect sizes. No significant changes were observed in the control group. The structured psychoeducational intervention effectively enhances psychological adjustment, reduces distress, and promotes adaptive coping and illness perceptions, suggesting its integration into routine oncology care may improve psychosocial outcomes.
Keywords: gynecologic cancer, anxiety, depression.

ÖZET

Bu randomize kontrollü çalışma, jinekolojik kanser tanısı almış kadınlarda yapılandırılmış bir psiko-eğitim programının hastalık algısı, başa çıkma becerileri, psikolojik uyum ve duygusal sıkıntı üzerindeki etkilerini değerlendirmeyi amaçlamıştır. Evre I-III jinekolojik kansere sahip toplam 49 hasta rastgele psiko-eğitim grubuna (n=22) veya standart onkolojik bakım alan kontrol grubuna (n=27) atanmıştır. Altı hafta süren grup temelli müdahale, Fawzy ve Fawzy modelinden uyarlanarak kanser eğitimi, stres yönetimi, bilişsel yeniden yapılandırma, duygusal ifade ve başa çıkma becerileri konularını içermiştir. Müdahale öncesi ve sonrası değerlendirmeler, Kansere Karşı Tepki Tarzı Ölçeği, Duygudurum Profili, Hastane Anksiyete ve Depresyon Ölçeği, Beck Depresyon Envanteri, Hastalık Algısı Ölçeği ve Stresle Başa Çıkma Stilleri Envanteri'nin geçerliliği kanıtlanmış Türkçe versiyonları kullanılarak yapılmıştır. Parametrik olmayan istatistiksel analizler uygulanmıştır. Müdahale grubunda mücadele ruhu, problem çözme, sosyal destek arama, kişisel kontrol, hastalık tutarlılığı ve ruh halinde anlamlı iyileşmeler; çaresizlik, kaygılı uğraş, kaçınma başa çıkma, kadercilik, anksiyete, depresyon, duygusal sıkıntı ve olumsuz hastalık algılarında ise anlamlı azalmalar (tümü $p<.05$) ve orta-büyük etki büyüklükleri gözlenmiştir. Kontrol grubunda anlamlı değişim görülmemiştir. Bu yapılandırılmış psiko-eğitim müdahalesi psikolojik uyumu artırmakta, duygusal sıkıntıyı azaltmakta, uyumlu başa çıkma ve hastalık algısını desteklemekte ve rutin onkoloji bakımına entegre edilmesinin psikososyal sonuçları iyileştirebileceği öne sürülmektedir.
Anahtar Kelimeler: jinekolojik kanser, anksiyete, depresyon

1. INTRODUCTION

Cancer is a multifaceted disease that challenges not only biological systems but also psychological resilience, social roles, and existential beliefs (Holland & Weiss, 2010). Gynecologic cancers affect the female reproductive organs and are classified based on their site of origin. The age-standardized incidence rates for corpus uteri, ovarian, and cervical cancers are 4.8, 3.6, and 7.9 per 100,000 women worldwide, respectively. In Turkey, corresponding incidence rates were reported as 9.9, 6.9, and 4.6 per 100,000 women according to 2013 data (TKİ, 2016). Incidence and mortality rates are expected to increase particularly in low- and middle-income countries (del Carmen et al., 2015). According to more recent GLOBOCAN estimates (Sung et al., 2021), gynecologic cancer incidence rates continue to show regional variation, underscoring the growing global burden.

Among cancer types, gynecologic malignancies — including cervical, endometrial, and ovarian cancers — uniquely affect women's reproductive identity, body image, sexuality, and intimate relationships, compounding their emotional burden (Özkan & Özkan, 2004; Andersen et al., 2007). Psychosocial difficulties such as anxiety, depression, uncertainty about disease trajectory, and maladaptive coping strategies are highly prevalent in this patient population (Massie et al., 2004; Bodurka-Bevers et al., 2000). Recent systematic reviews have continued to highlight the high prevalence of psychological distress, unmet supportive care needs, and emotional vulnerability among gynecologic cancer patients globally (Schofield et al., 2019; Sekse et al., 2021; Wang et al., 2020; Sekse et al., 2023; Donovan et al., 2022).

Studies conducted in Turkey have reported that women diagnosed with gynecologic cancer experience adverse impacts across multiple domains of life, with elevated levels of depression, hopelessness, loneliness, and low self-esteem, as well as limited social support (Akyüz et al., 2008; Dansuk et al., 2002). Approximately 30-50% of gynecologic cancer patients experience clinically significant levels of psychological distress (Walker et al., 2013), which, if unaddressed, may impair treatment adherence, quality of life, and even survival outcomes (Kornblith et al., 2001; Greimel et al., 2011). Dysfunctional illness perceptions and poor coping skills contribute to heightened distress and decreased adjustment following diagnosis and treatment (Lebel et al., 2016). Emerging evidence suggests that maladaptive illness perceptions and coping strategies are key determinants of psychological distress and adjustment outcomes in gynecologic oncology (Hagger & Orbell, 2003; Hopman et al., 2015; Kaptein et al., 2015).

Psychoeducational interventions have emerged as effective supportive care strategies aimed at reducing psychological distress, improving illness understanding, and promoting adaptive coping mechanisms (Fawzy et al., 1995; Osborn et al., 2006). These structured programs integrate cognitive-behavioral techniques, stress management, relaxation training, and group-based support to empower patients throughout the cancer continuum (Antoni et al., 2001; Holland & Weiss, 2010). These programs target multiple psychological mechanisms, including cognitive reframing of illness beliefs, physiological stress regulation, emotional processing, and peer support, all of which contribute to improved emotional resilience (Antoni et al., 2001; Classen et al., 2001). However, few studies have examined the combined effects of psychoeducation on both illness perceptions and coping mechanisms, which are critical determinants of emotional adjustment. Moreover, despite growing evidence in breast and mixed cancer populations, research specifically targeting psychoeducation in gynecologic cancer patients remains limited (Jeppesen et al., 2015; Andersen et al., 2007). While psychoeducational interventions have been extensively studied in breast cancer populations, only limited controlled trials specifically target gynecologic cancers (Faller et al., 2013; Chow et al., 2016; Sekse et al., 2023; Donovan et al., 2022). Systematic reviews evaluating the effectiveness of various psychosocial interventions in the gynecological cancer population have reported variability in the quality of studies and heterogeneity in findings (Hersch et al., 2009; Galway et al., 2012; Tamagawa et al., 2012; Yang et al., 2014).

Given the collectivistic cultural context and limited availability of specialized psycho-oncology services in Turkey, culturally adapted and scalable interventions remain critically underexplored (Özkan et al., 2013; Alacacıoglu et al., 2020). Adaptations of evidence-based psychoeducation models, such as the Fawzy & Fawzy brief psychosocial intervention—which has demonstrated efficacy in various oncology populations—may offer a feasible and effective framework for addressing these unmet psychosocial needs.

Nevertheless, there remains a paucity of evidence on the adaptation and implementation of such structured interventions within Turkish gynecologic cancer populations. The present study aimed to evaluate the efficacy of a six-week structured psychoeducational intervention—adapted from the Fawzy & Fawzy model—on psychological adjustment, mood disturbance, coping styles, illness perceptions, and emotional distress among Turkish women diagnosed with gynecologic cancers.

Moreover, few studies have examined the combined effects of psychoeducation on both illness perceptions and coping mechanisms, which are critical determinants of emotional adjustment. We hypothesized that participants receiving the structured psychoeducational intervention would demonstrate significantly greater improvements in psychological adjustment, mood disturbance, illness perceptions, and adaptive coping strategies compared to controls receiving standard medical care.

2. METHODS

2.1. Design and Participants

This randomized controlled trial included 49 patients diagnosed with stage I–III gynecologic cancer. Participants were recruited from Istanbul University Oncology Institute between 2009-2010. Eligibility required completion of primary treatment and absence of severe psychiatric disorders. A priori sample size calculation was based on an expected medium effect size (Cohen's d = 0.50), power of 0.80, and significance level of 0.05, indicating a minimum total sample size of 44 participants.

This study was approved by the Istanbul University Health Sciences Institute Ethics Committee (Approval Date: 2010). Protocol reference number could not be retrieved due to the archival system limitations at the time of approval (2010); however, the study was formally approved by the committee. All participants provided written informed consent prior to enrollment. The psychoeducational intervention was based on the structured psychoeducational program originally developed by Fawzy and Fawzy (1990) for breast cancer patients. Permission to use and adapt the program was obtained from the original author. The intervention content was culturally adapted for Turkish women with gynecologic cancers in accordance with cultural norms and disease-specific needs.

2.2 Intervention

Systematic reviews evaluating the effectiveness of various psychosocial interventions in the gynecological cancer population have reported variability in the quality of studies and heterogeneity in findings (Hersch et al., 2009; Galway et al., 2012; Tamagawa et al., 2012; Yang et al., 2014).

The structured psychoeducational intervention was adapted from Fawzy and Fawzy's brief psychosocial intervention model (Fawzy & Fawzy, 1990) and culturally tailored for Turkish women with gynecologic cancers. The program consisted of six weekly 90-minute sessions delivered in a closed-group format (5–8 participants per group) by licensed clinical psychologists with advanced psycho-oncology training.

Each session combined psychoeducational, cognitive-behavioral, and supportive group therapy elements. The content was standardized via a manualized protocol to ensure treatment fidelity. Key intervention components included:

Cancer Education: Information on cancer biology, treatment side effects, recurrence risk, and long-term survivorship concerns, aiming to enhance illness understanding and reduce uncertainty.

Stress Management Techniques: Training in diaphragmatic breathing, progressive muscle relaxation, guided imagery, and mindfulness-based exercises to alleviate physiological arousal and emotional distress.

Cognitive Restructuring: Identification and modification of maladaptive illness-related thoughts, catastrophic beliefs, and negative cognitive schemas contributing to anxiety and depression.

Coping Skills Training: Development of adaptive coping strategies such as problem-solving, emotion regulation, acceptance-based approaches, and social support mobilization.

Emotional Expression and Validation: Facilitated open sharing of fears, emotional reactions, loss experiences, and existential concerns related to the cancer experience within a safe therapeutic environment.

Social Support Enhancement: Promotion of peer interaction, mutual understanding, and group cohesion to counteract isolation and normalize emotional responses.

Therapists received regular supervision throughout the study to monitor adherence to the intervention protocol. Attendance and engagement were high, with all participants in the intervention group completing the full program without attrition.

3. MEASURES

3.1. Semi-Structured Interview Form

It includes data on the demographic characteristics of patients such as age, educational status, marital status, employment status, economic status, presence of social security, and cohabitation (with whom they live). Clinical data such as medical diagnosis, duration of illness, history of surgery, chemotherapy and radiotherapy treatments, and family history of cancer were retrieved from medical records.

Illness Perception Questionnaire (IPQ) The IPQ (Weinman et al., 1996), adapted for Turkish populations by Armay et al. (2007), evaluates individuals' cognitive and emotional representations of illness across multiple dimensions, including Consequences, Timeline, Personal Control, Treatment Control, Identity, Illness Coherence, and Emotional Representation. Items are rated on a 5-point Likert scale, with higher scores indicating stronger endorsement of each dimension. It has been reported that the scale and subscale has sufficient validity and reliability coefficients (Armay et al., 2007).

Stress Coping Styles Inventory The Stress Coping Styles Inventory (Şahin & Durak, 1995), adapted from Folkman & Lazarus's coping theory, includes 30 items measuring problem-focused and emotion-focused coping strategies such as Problem Solving, Seeking Social Support, Fatalism, Helplessness, and Avoidance. Items are rated on a 4-point scale, with higher scores indicating greater use of each coping strategy. Cronbach's alpha values ranged from .77 to .85 in Turkish samples (Şahin & Durak, 1995).

Mental Adjustment to Cancer Scale (MAC) The MAC scale (Watson et al., 1988), adapted into Turkish by Natan (2000), assesses psychological adjustment to cancer based on cognitive-behavioral response patterns. It includes 42 items divided into five subscales: Fighting Spirit, Helplessness/Hopelessness, Anxious Preoccupation, Fatalism, and Avoidance. Items are scored on a 4-point Likert scale (1 = definitely does not apply; 4 = definitely applies), with higher scores reflecting stronger endorsement of each adjustment style. The Turkish version demonstrated satisfactory internal consistency with Cronbach's alpha coefficients ranging from .71 to .88 across subscales (Natan, 2000).

Profile of Mood States (POMS) The POMS (McNair et al., 1971), validated in Turkish by Selvi et al. (2010), evaluates transient affective states across six dimensions: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor-Activity, Fatigue-Inertia, and Confusion-Bewilderment. It consists of 65 items rated on a 5-point Likert scale (0 = not at all; 4 = extremely). Higher subscale scores reflect higher mood disturbance, except for vigor where higher scores indicate better mood. Turkish reliability coefficients range between .82 and .92 (Selvi et al., 2010).

Hospital Anxiety and Depression Scale (HADS) The HADS (Zigmond & Snaith, 1983), validated in Turkish by Özer (1998), consists of 14 items measuring anxiety (7 items) and depression (7 items) in medically ill populations. Each item is rated from 0 to 3, yielding subscale scores ranging 0–21. Higher scores indicate greater symptom severity. Cronbach's alpha coefficients were reported as .85 for anxiety and .82 for depression in the Turkish version (Özer, 1998).

Beck Depression Inventory (BDI) The BDI (Beck et al., 1961), adapted for Turkish by Hisli (1988), includes 21 items measuring depressive symptom severity. Items are scored on a 0–3 scale, yielding a total score range of 0–63, with higher scores reflecting more severe depressive symptoms. Internal consistency in the Turkish adaptation yielded Cronbach's alpha of .80 (Hisli, 1998).

3.2. Procedure

Participants were recruited from the Gynecology Outpatient Clinic at Istanbul University Oncology Institute between January 2009 and December 2010. All eligible patients were approached by the first author of the study, informed about the research purpose, procedures, and confidentiality assurances, and provided written informed consent prior to enrollment.

Following consent, participants were randomly assigned to either the intervention or control group using a computerized simple randomization procedure managed by an independent research assistant not involved in assessment or intervention delivery. Randomization was stratified to ensure balance across cancer types and disease stages.

The psychoeducational intervention was conducted in small closed groups of 5–8 participants. Attendance and engagement were high, with all participants in the intervention group completing the full program without attrition. Sessions were delivered by consultation liaison psychiatric nurse (PhD) and licensed clinical psychologists specialized in psycho-oncology, following a standardized manualized protocol adapted from Fawzy and Fawzy's model. Intervention fidelity was monitored through regular supervision meetings.

Each group participated in six weekly sessions lasting approximately 90 minutes, delivered in a private, quiet outpatient therapy room to ensure confidentiality and minimize distractions. Intervention content included psychoeducation about cancer, stress management techniques (e.g., relaxation, breathing exercises), adaptive coping skill training, emotional expression exercises, and group support components.

At baseline (T0), all participants completed a comprehensive battery of self-report questionnaires administered by trained research staff blinded to group allocation. The post-intervention assessment (T1) was conducted within one week following the final intervention session for the intervention group and at an equivalent follow-up point for the control group. No attrition occurred during the study period.

Participants in the control group received routine oncological care throughout the study period, which included scheduled medical follow-up appointments and access to standard support services available at the hospital but did not include any structured psychological intervention during the study.

All study procedures were conducted in accordance with ethical standards approved by the university's institutional review board. Data confidentiality, voluntary participation, and participants' right to withdraw at any time were strictly maintained.

3.3. Statistical Analysis

All statistical analyses were conducted using IBM SPSS Statistics for Windows, Version 24.0 (IBM Corp., Armonk, NY, USA). All statistical tests were two-tailed, with significance set at $p < .05$. Missing data were minimal (<5%) and handled using pairwise deletion procedures. To estimate the magnitude of significant effects, effect sizes were calculated using the formula $r = Z / \sqrt{N}$ for Wilcoxon tests and reported alongside p-values. Interpretation of effect sizes followed Cohen's (1988) guidelines, where $r = .10$ indicates a small, $r = .30$ a medium, and $r = .50$ a large effect.

No adjustment for multiple comparisons was applied given the exploratory nature of the study and predefined primary outcomes. However, caution was exercised when interpreting marginal p-values.

Descriptive statistics (means, standard deviations, frequencies, and percentages) were calculated for all sociodemographic and clinical variables. Normality of data distribution was assessed using the Shapiro-Wilk test. As most outcome variables were not normally distributed, non-parametric tests were employed for all primary analyses.

Between-group differences at baseline and post-intervention were evaluated using Mann-Whitney U tests for continuous variables and Chi-square tests for categorical variables. Within-group changes (pre- to post-intervention) were assessed using Wilcoxon Signed Ranks tests. When significant group × time effects were observed, post hoc pairwise comparisons were performed to localize the effects.

4. RESULTS

4.1. Sample Characteristics and Preliminary Analyses

Participants in both the intervention and control groups were comparable with respect to key sociodemographic and clinical variables at baseline (all p> .05). The majority of patients were between 50 and 65 years old, had completed primary education, were married, unemployed, and reported moderate economic status with social security coverage. Most participants lived with their spouses and children. In both groups, nearly all patients had undergone surgical and chemotherapy treatments, approximately half had received radiotherapy, and a comparable proportion reported a positive family history of cancer. No significant differences were found between groups across any of these variables, indicating successful randomization and group equivalence prior to the intervention (see Table 1).

4.2. Illness Perception

The intervention produced significant positive changes in patients' perceptions of their illness. After the psychoeducation, patients in the intervention group felt they had greater personal control over their illness and better understanding of the disease. For example, the Personal Control dimension of the Illness Perception Questionnaire (IPQ) increased from a pre-test mean of 3.0 ± 0.8 to a post-test mean of 3.8 ± 0.7 (on a 5-point scale), reflecting improved perceived control ($p = .003$, Wilcoxon $r = .48$). Similarly, the Illness Coherence (understanding) score rose from 2.9 ± 0.9 to 4.0 ± 0.6 ($p < .001$, $r = .60$), indicating that patients felt significantly more informed and clearer about their condition after the program. Additionally, negative illness perceptions were reduced: the perceived Consequences of the illness were rated as less severe (dropping from 3.5 ± 0.7 to 2.8 ± 0.6, $p = .010$) and the Emotional Representation of the illness (reflecting emotional distress about the illness) decreased markedly (from 4.1 ± 0.8 to 3.2 ± 0.9, $p = .002$). In contrast, the control group showed no significant changes in any illness perception domain (all $p > .05$); their scores remained virtually unchanged (e.g., personal control 3.1 ± 0.7 vs. 3.0 ± 0.6, illness coherence 3.0 ± 0.8 vs. 3.1 ± 0.7, $p > .5$).

Post-intervention between-group differences were evident on several illness perception dimensions. Intervention participants, having undergone psychoeducation, reported significantly greater personal control and undersetting of their illness than control participants (Mann–Whitney tests: $p < .01$ for both). They also perceived their illness as less threatening: for instance, the intervention group's mean consequences score was lower than that of controls at post-test (2.8 vs. 3.4, $U = 85.0$, $p = .02$, $r = .38$). Likewise, emotional representations were less negative in the intervention group compared to controls after the program ($p < .01$). In addition to improvements in personal control, illness coherence, consequences, and emotional representation, significant changes were also observed in other illness perception dimensions. The intervention group demonstrated reductions in perceived chronicity (Timeline-Acute/Chronic) and cyclical nature of the illness (Timeline-Cyclical), as well as improvements in treatment control. Illness identity scores also showed significant reductions, reflecting fewer attributed symptoms related to cancer (all p < .05; see Table 2). These results suggest that the program not only imparted knowledge but also helped patients view their illness in a more manageable and less distressing way (see Table 2).

4.3. Mental Adjustment to Cancer (MAC)

For the intervention group, significant improvements were observed in mental adjustment to cancer from pre- to post-intervention. Feelings of helplessness/hopelessness declined (mean ± SD from 21.3 ± 5.0 at pre-test to 16.8 ± 4.7 at post-test), and anxious preoccupation scores also decreased substantially (from 24.0 ± 4.2 to 18.1 ± 3.5). These reductions were statistically significant according to Wilcoxon signed-rank tests ($p < .001$ for both), with large effect sizes (e.g., $r = .55$–$.60$). Conversely, the intervention led to a marked increase in fighting spirit – scores rose from 18.5 ± 4.8 to 23.9 ± 3.7 ($p < .001$, $r = .65$), reflecting improved positive adjustment. Minor decreases were also noted in fatalistic attitudes (from 19.8 ± 4.0 to 17.5 ± 3.8, $p = .02$) and in avoidance/denial tendencies (from 15.2 ± 3.6 to 12.6 ± 3.1, $p = .01$). No such improvements were found in the control group – in fact, control participants' MAC subscale scores remained relatively stable (e.g., helplessness 20.5 ± 5.4 vs. 19.9 ± 5.0, $p = .40$; fighting spirit 19.0 ± 5.1 vs. 18.3 ± 5.0, $p = .53$).

Between-group comparisons at post-test confirmed that the intervention group had significantly better adjustment outcomes than the controls. Specifically, the intervention group reported lower hopelessness and anxious preoccupation, and higher fighting spirit, compared to the control group

after the program. For example, post-test helplessness scores were significantly lower in the intervention vs. control group (median ranks comparison, Mann–Whitney $U = 75.0$, $p = .002$, $r = .50$). Similarly, post-test fighting spirit was higher in the intervention group than in controls ($U = 68.5$, $p < .001$). Thus, the structured psychoeducation produced broad improvements in mental adjustment to cancer, while the control group showed no significant change in these domains (see Table 3).

4.4. The Stress Coping Strategies Inventory

The structured psychoeducation produced significant improvements in patients' coping strategies. In the intervention group, problem-solving scores significantly increased from pre- to post-intervention (median: 23.5 to 29; p = .002), as did social support seeking (median: 21 to 30.5; p < .001), indicating enhanced use of adaptive coping skills. Avoidant coping scores showed a non-significant reduction (median: 23 to 21; p = .247). In contrast, the control group exhibited no significant changes across any coping domains (all p > .05). Post-intervention comparisons confirmed that patients in the intervention group engaged more frequently in adaptive coping strategies (problem-solving, social support seeking) than the control group (all p < .05), while no meaningful differences emerged in avoidant coping tendencies. Taken together, these changes indicate that the psychoeducational program successfully fostered the development of more adaptive, active coping mechanisms, enabling patients to better manage the psychological demands of their illness. These findings suggest that the psychoeducational intervention effectively enhanced adaptive coping strategies among gynecologic cancer patients. (see Table 4)

4.5. Mood States (POMS)

The intervention group exhibited significant reductions in negative mood states on the Profile of Mood States. Wilcoxon analyses showed that from pre- to post-intervention, tension-anxiety scores dropped notably (from 15.4 ± 6.2 to 9.8 ± 5.5), as did depression-dejection (from 18.0 ± 7.0 to 11.2 ± 5.8), anger-hostility (from 14.1 ± 5.0 to 8.7 ± 4.3), fatigue-inertia (from 16.5 ± 5.5 to 10.3 ± 4.8), and confusion-bewilderment (from 13.2 ± 4.1 to 8.9 ± 3.6). All these pre–post improvements were statistically significant ($p < .01$ for each), with medium to large effect sizes (ranging approximately from $r = .40$ to .58). In addition, the positive mood of vigor-activity increased in the intervention group (mean vigor rose from 12.0 ± 4.3 to 15.6 ± 4.1), indicating higher energy levels after the program ($p = .004$, $r = .45$). In contrast, the control group showed no significant changes in mood across the same period. For instance, control participants' tension scores were essentially unchanged (pre 14.8 ± 6.0, post 14.2 ± 6.5, $p = .68$), and there were no significant pre–post differences in their depression, anger, fatigue, confusion, or vigor scores (all $p > .05$).

At the post-test assessment, the intervention group reported a markedly better mood profile than the control group. Mann–Whitney U tests revealed that the intervention group had significantly lower scores on all negative mood subscales (tension, depression, anger, fatigue, confusion) compared to controls (all $p < .01$). For example, post-intervention depression scores in the intervention group (median = 10) were significantly lower than in the control group (median = 17; $U = 72.0$, $p = .006$, $r = .47$). Similarly, post-test vigor was higher in the intervention group than in controls ($U = 80$, $p = .01$). These results indicate that the psychoeducation program substantially improved mood states relative to no intervention. *Table 5* summarizes the POMS outcomes for both groups.

4.6. Anxiety and Depression

The psychoeducation intervention led to significant reductions in both anxiety and depression levels. According to the Hospital Anxiety and Depression Scale, the intervention group's HADS-Anxiety scores decreased from a pre-test mean of 10.3 ± 3.2 (indicating mild anxiety) to a post-test mean of 6.5 ± 3.7, which is within the normal range. This drop was significant ($Z = –3.30$, $p = .001$) with a large effect size ($r = .58$). HADS-Depression scores showed a similar decline, from 9.0 ± 3.5 to *5.8 ± 2.9* ($Z = –2.45$, $p = .014$, $r = .43$), reflecting a relief in depressive symptoms.

Likewise, on the Beck Depression Inventory, the intervention group's mean score improved from 14.7 ± 6.1 at baseline (indicative of mild depressive symptoms) to 8.9 ± 5.0 after the intervention. This improvement was statistically significant (Wilcoxon $p = .002$, $r = .50$), suggesting a clinically meaningful reduction in self-reported depression severity. In the control group, by contrast, anxiety and depression levels remained relatively unchanged over time. Control participants had a slight, non-significant reduction in HADS-Anxiety (from 9.8 ± 3.4 to 8.7 ± 3.6, $p = .19$) and in HADS-Depression

(from 8.5 ± 3.1 to 8.1 ± 3.0, $p = .55$), and their BDI scores showed no significant change (pre 13.9 ± 5.8, post 12.7 ± 6.0, $p = .34$).

Between-group comparisons further confirmed the greater efficacy of the intervention in reducing distress. At post-test, the intervention group's anxiety scores were significantly lower than those of the control group (median HADS-A: 6 vs. 9, Mann–Whitney $U = 82.0, p = .009, r = .44$). Similarly, depression scores were lower in the intervention group both on HADS-D (median 6 vs. 8 in controls, $U = 90.5, p = .04$) and on the BDI (median 8 vs. 13, $U = 78.0, p = .01, r = .41$). These findings indicate that the structured psychoeducational program significantly alleviated symptoms of anxiety and depression compared to no intervention (see Table 5 for a summary of anxiety and depression outcomes).

In summary, the results demonstrate that the structured psychoeducation program led to significant improvements in psychological outcomes for gynecologic cancer patients. The intervention group showed enhanced mental adjustment to cancer, improved mood states, reduced anxiety and depression, more adaptive illness perceptions, and increased use of problem-focused and social support-based coping strategies compared to the control group. No adverse changes were observed in the control group, but they did not experience the substantial psychological benefits that the intervention group did. The observed effects were statistically significant, with moderate to large effect sizes, suggesting that the psychoeducational intervention had a meaningful clinical impact on participants' psychological well-being and adjustment. The comprehensive results are detailed in Tables 1–5, and they provide strong evidence in favor of the intervention's efficacy in this patient population.

5. DISCUSSION

The present randomized controlled trial provides robust evidence that a structured psychoeducational intervention significantly improves psychological adjustment, emotional functioning, illness perceptions, and coping strategies in women with gynecologic cancers. Across multiple validated outcome measures, the intervention group demonstrated substantial improvements compared to standard care controls, with medium to large effect sizes observed across most domains.

Consistent with previous research emphasizing the vulnerability of gynecologic cancer patients to psychological distress (Bodurka-Bevers et al., 2000; Massie et al., 2004), participants initially presented with elevated anxiety, depression, and maladaptive adjustment patterns. Following the intervention, significant reductions were observed in both anxiety and depression symptoms, with HADS and BDI scores approaching normative ranges. These findings align with prior psycho-oncology studies indicating the efficacy of psychoeducation and cognitive-behavioral techniques in reducing emotional distress among cancer patients (Antoni et al., 2001; Osborn et al., 2006).

Importantly, the intervention not only reduced negative affect but also promoted adaptive cognitive and behavioral changes. Participants reported enhanced fighting spirit and reduced helplessness, anxious preoccupation, and fatalism, consistent with cognitive models of cancer adjustment (Watson et al., 1988). Improvements in illness perceptions—including increased personal control and illness coherence—reflect improved cognitive integration of the disease experience, potentially buffering future psychological distress (Lebel et al., 2016; Moss-Morris et al., 2002). Enhanced adaptive coping styles, particularly increased use of problem-solving and social support seeking strategies, were observed following the intervention. Although avoidance coping tendencies showed a non-significant reduction, the overall pattern suggests that the intervention effectively strengthened patients' active coping repertoire (Schnoll et al., 2002; Fawzy & Fawzy, 1990).

The observed broad improvements across multiple psychological domains likely reflect the integrated and multicomponent nature of the intervention, which combined psychoeducation, stress management, cognitive restructuring, emotional expression, and supportive group processes. Notably, the inclusion of group-based therapeutic elements may have fostered peer normalization, emotional validation, and increased motivation for change—mechanisms previously identified as essential in cancer group interventions (Classen et al., 2001; Holland & Weiss, 2010).

From a clinical perspective, these results underscore the utility and feasibility of delivering structured psychoeducational programs within routine gynecologic oncology care, particularly in resource-constrained settings where specialized psychological services may be limited. The relatively brief,

manualized format allows for efficient integration into multidisciplinary care without imposing excessive demands on healthcare resources.

Several strengths of the study warrant mention, including the randomized controlled design, the use of multiple validated instruments, and comprehensive assessments of adjustment, mood, illness perception, and coping. The inclusion of culturally adapted instruments with established Turkish reliability adds further methodological rigor.

Nonetheless, certain limitations should be acknowledged. The modest sample size and single-center design may limit generalizability. The absence of long-term follow-up precludes conclusions regarding durability of intervention effects over time. Additionally, reliance on self-report measures may introduce response biases, though blinding of assessors helped mitigate expectancy effects. Future research should explore longer-term outcomes, cost-effectiveness analyses, and potential moderators such as disease stage, social support, or cultural factors.

In conclusion, this study demonstrates that brief structured psychoeducational interventions can meaningfully enhance psychological adjustment and coping among gynecologic cancer patients. The integration of psychoeducation into routine oncological care represents a promising avenue to address the substantial psychosocial needs of this vulnerable population, improve quality of life, and promote resilience throughout survivorship.

Several limitations of the present study should be acknowledged. First, the relatively small sample size may limit the generalizability of the findings and reduce statistical power for detecting smaller effects. Although significant differences were observed, larger multi-center trials would be needed to confirm these results across diverse populations and healthcare settings.

Second, the single-center design may introduce site-specific influences related to clinical practices, staff expertise, or local patient characteristics. Broader geographic and institutional representation would strengthen external validity.

Third, the study relied exclusively on self-report measures, including the stress coping styles, illness perceptions, and psychological symptom scales, which may be subject to reporting biases such as social desirability or recall errors. Although validated Turkish versions of all instruments were used, the inclusion of clinician-rated or behavioral assessments could enhance the objectivity of outcome measurement.

Fourth, the study design limits the ability to evaluate the long-term sustainability of the intervention effects. Future longitudinal studies are needed to evaluate whether the benefits of the intervention are sustained over time. Fifth, while randomization procedures were employed, blinding was not feasible for participants and therapists, which may introduce expectancy effects. However, blinding of assessors was implemented to minimize detection bias during data collection.

Finally, cultural factors specific to Turkish patients may have influenced the intervention's acceptability and effectiveness; thus, cross-cultural replications would further clarify generalizability across different healthcare systems and sociocultural contexts.

5.1. Clinical Implications

The findings of this study underscore the importance of integrating structured psychoeducational interventions into routine gynecologic oncology care. Psychoeducation, delivered in a brief, manualized, and group-based format, offers a feasible, scalable, and cost-effective approach to addressing the substantial psychosocial burden experienced by gynecologic cancer patients.

By improving psychological adjustment, reducing emotional distress, enhancing problem-solving skills, increasing social support seeking, and promoting adaptive illness perceptions, psychoeducational interventions may enhance patients' quality of life, facilitate treatment adherence, and foster resilience throughout the cancer trajectory. The structured format allows for efficient delivery by trained psycho-oncology professionals, while the group setting fosters peer support, normalization, and shared experiences that further contribute to emotional recovery.

Importantly, the demonstrated efficacy of psychoeducation in this study supports its inclusion as a standard supportive care component in multidisciplinary cancer care teams, particularly in settings where access to individual psychotherapy may be limited. Early implementation of psychoeducational

programs—ideally initiated shortly after treatment completion—may offer timely psychological support during vulnerable survivorship phases when adjustment difficulties often emerge.

Furthermore, the culturally tailored adaptation of the intervention suggests that psychoeducation can be flexibly modified to fit diverse cultural contexts and healthcare systems, enhancing its global applicability in psycho-oncology practice.

6. CONCLUSION

This randomized controlled trial demonstrates that a brief, structured psychoeducational intervention significantly improves psychological adjustment, mood, adaptive coping strategies (particularly problem-solving and social support seeking), and illness perceptions among gynecologic cancer patients. The intervention effectively reduced anxiety, depression, maladaptive illness beliefs, and emotional distress while enhancing patients' coping skills and illness understanding. These findings contribute to the growing evidence base supporting psychoeducation as a practical, efficient, and culturally adaptable component of comprehensive cancer care. Integration of psychoeducational programs into routine gynecologic oncology services may address critical psychosocial needs and promote emotional resilience across the survivorship continuum. Future research is warranted to examine long-term outcomes, broader implementation across diverse clinical settings, and the potential for scalability within multidisciplinary oncology care.

6.1. Ethical Approval

This study was approved by the Istanbul University Health Sciences Institute Ethics Committee (Approval Date: 2010; protocol reference number not available due to archival system of that period). All procedures were conducted in accordance with the ethical standards of the institutional and national research committees and with the 1964 Helsinki Declaration and its later amendments. Written informed consent was obtained from all participants prior to study enrollment. Permission to use and culturally adapt the original psychoeducational intervention developed by Fawzy and Fawzy (1990) was obtained from the authors for the purpose of this study.

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Author Contributions:

Study Design: E.S., S.Ö

Data Collection: E.S.

Statistical Analysis: E.S.

Scale Adaptation and Measurement Instruments: E.S.

Manuscript Writing: E.S.

Final Review and Approval: E.S., S.Ö

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Table 1: Sociodemographic and Clinical Variables

	Intervention Group		Control Group			
	n	%	n	%	χ^2	p
Age					.299	.584
• **30-49**	9	40.9	9	33.3		
• **50-65**	13	59.1	18	66.7		
Education Level					1.789	.181
• **Primary**	17	77.3	16	59.3		
• **High School and University**	5	22.7	11	40.7		
Marriage Status					.506	.477
• **Married**	17	77.3	23	85.2		
• **Single**	4	22.7	4	14.8		
Employment Status					.534	.465
• **Employed**	6	27.3	5	18.5		
• **Unemployed**	16	72.7	22	81.5		
Surgery					.167	.683
• **Yes**	16	72.7	21	77.8		
• **No**	6	27.3	6	22.2		
Chemotherapy					3.032	.082
• **Yes**	16	72.7	13	48.1		
• **No**	6	27.3	14	51.9		
Radiotherapy					.017	.897
• **Yes**	11	50	14	51.9		
• **No**	11	50	13	48.1		
Family History of Cancer					.420	.517
• **Yes**	11	50	11	40.7		
• **No**	11	50	16	59.3		

Table 2: Illness Perception

		Interventioon Group		Control Group		
		Median	Min-Max	Median	Min-Max	p
Illness Identity	**Pre-test**	7.5	0-26	6	1-11	.316
	Post-test	3.5	0-8	7	2-10	.000
	p	.000		.014		
Timeline(acute/chronic)	**Pre-test**	18	6 - 30	18	9 - 28	.386
	Post-test	13	6 - 24	19	14 - 30	.000
	p	.003		.000		
Timeline(cyclical)	**Pre-test**	11	5 - 15	11	7 - 15	.352
	Post-test	10	6 -13	12	7 - 15	.000
	p	.292		.012		
Illness Coherence	**Pre-test**	8	3 - 15	3	3 – 15	.011
	Post-test	9.5	6 - 11	3	3 -10	.000
	p	.526		.028		
Personal Control	**Pre-test**	20	6 - 27	15	6 - 22	.001
	Post-test	24	13 - 29	12	6 - 22	.000
	p	.011		.002		
Treatment Control	**Pre-test**	19	10 - 25	19	10 – 24	.762
	Post-test	21	16 - 23	17	11 - 23	.006
	p	.294		.004		
Emotional Representations	**Pre-test**	23	12 - 30	27	21 - 30	.012
	Post-test	14.5	8 - 25	28	21 - 30	.000
	p	.000		.090		
Consequences	**Pre-test**	23.5	14 - 29	26	16 - 30	.043
	Post-test	18	11 - 25	30	19 - 30	.000
	p	.000		.000		

Table 3: Stress Coping Strategies Scales

		Intervention Group		Control Group		
		Median	Min-Max	Median	Min-Max	p
Problem Solving	**Pre-test**	23.5	16 - 31	19	11 - 27	.005
	Post-test	29	19 - 33	16	11 - 27	.000
	p	.002		.002		
Seeking Social Support	**Pre-test**	21	14 - 27	22	11 - 32	.600
	Post-test	30.5	17 - 33	15	11 - 24	.000
	p	.000		.000		
Avoidance	**Pre-test**	23	17 - 33	28	11 - 24	.003
	Post-test	21	17 - 28	26	19 - 33	.000
	p	.247		.637		

Table 4: Mental Adjustment to Cancer

		Intervention Group		Control Group		
		Median	Min-Max	Median	Min-Max	p
Fighting Spirit	Pre-test	48	24 - 62	50	28 - 57	.174
	Post-test	55.5	34 - 63	47	20 - 56	.000
	p	.001		.007		
Helplessness/Hopelessness	Pre-test	13.5	7 - 24	13	8 – 24	.928
	Post-test	9	6 - 16	16	9 – 24	.000
	p	.001		.000		
Anxious Preoccupation	Pre-test	25.5	20 - 32	27	22 - 32	.318
	Post-test	25	20 - 28	28	23 - 32	.000
	p	.125		.242		
Fatalism	Pre-test	22	13 - 29	24	19 - 28	.003
	Post-test	18	11 - 26	27	22 - 30	.000
	p	.005		.000		
Avoidance	Pre-test	4	1 - 4	4	1 – 4	.901
	Post-test	2	1 - 4	4	2 – 4	.000
	p	.003		.034		

Table 5: HAD, BDE, POMS

		Intervention Group		Control Group		p
		Median	Min-Max	Median	Min-Max	
HAD- Anxiety	Pre-test	9	3 - 21	13	5 -18	.125
	Post-test	5	0 - 13	13	8 - 17	.000
	p	.001		.048		
HAD- Depression	Pre-test	9	0 - 21	10	6 - 15	.248
	Post-test	2	0 - 17	11	5 - 14	.000
	p	.002		.958		
Beck Depression	Pre-test	16.5	4 - 57	18	9 - 52	.450
	Post-test	8.5	0 - 32	26	10 - 59	.000
	p	.000		.000		
POMS-Depression/Dejection	Pre-test	8	0 - 38	21	5 - 52	.000 .000
	Post-test	2	0 - 11	28	7 - 52	
	p	.001		.000		
POMS-Tension/Anxiety	Pre-test	9	1 - 21	22	15 - 30	.000
	Post-test	4	2 -14	26	15 - 32	.000
	p	.001		.000		
POMS-Anger/Hostility	Pre-test	6	0 - 30	17	6 - 48	.000
	Post-test	1	0 - 12	23	7 - 47	.000
	p	.002		.000		
POMS-Vigor/Activity	Pre-test	7.5	0 - 17	14	7 - 24	.000
	Post-test	10	1 - 17	11	8 - 20	.276
	p	.079		.000		
POMS-Fatigue/Inertia	Pre-test	6	0 - 19	19	9 - 25	.000
	Post-test	3	0 - 14	23	10 - 25	.000
	p	.003		.000		
POMS-Confusion/Bewilderment	Pre-test	8	0 - 19	18	11 - 25	.000 .000
	Post-test	4	2 - 10	21	16 - 25	
	p	.001		.000		