KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 11 April 2025
Revised 12 August 2025
Accepted 20 August 2025
Published online 01 October 2025

Psychology of Woman Journal

Volume 6, Issue 4, pp 1-10

PWJ
Psychology of Woman Journal
Publisher: KMANPub

E-ISSN: 3041-8615

Comparative Effectiveness of Cognitive Behavioral Group Therapy and Emotion-Focused Therapy on Sexual Dysfunction in Patients with Cervical Cancer

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A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Norouzi, E., Sobhani, A., Nikyar, H. R., & Rezaie Jamalouei, H. (2025). Comparative Effectiveness of Cognitive Behavioral Group Therapy and Emotion-Focused Therapy on Sexual Dysfunction in Patients with Cervical Cancer. *Psychology of Woman Journal, 6*(4), 1-10.
http://dx.doi.org/10.61838/kman.pwj.4363

A B S T R A C T

Objective: The aim of this study was to compare the effectiveness of cognitive behavioral therapy (CBT) and emotion-focused therapy (EFT) on improving sexual function and its components in women diagnosed with cervical cancer.

Methods and Materials: This quasi-experimental study utilized a pretest-posttest control group design with follow-up. Sixty women with cervical cancer referred to Vali-e-Asr Hospital in Zanjan were selected through purposive sampling and randomly assigned to two intervention groups (CBT and EFT) and one control group, with 20 participants in each. Both interventions were delivered in ten weekly group sessions. Data were collected using the Female Sexual Function Index (FSFI), which assesses six dimensions: sexual desire, arousal, lubrication, orgasm, satisfaction, and pain. Mixed-design ANOVA was used to analyze the effects of time, group, and their interaction, and Bonferroni post hoc tests were conducted for pairwise comparisons.

Findings: Results indicated that both CBT and EFT significantly improved all components of sexual function and total FSFI scores compared to the control group ($p < .001$). Significant main effects of time, group, and interaction effects were observed for all variables. Bonferroni tests showed that both intervention groups had significantly higher posttest and follow-up scores in desire, orgasm, satisfaction, pain, and total FSFI compared to controls. However, no statistically significant differences were found between the CBT and EFT groups across most components ($p > .05$), and improvements were maintained at follow-up, indicating stability of treatment effects.

Conclusion: These findings support the integration of psychotherapeutic interventions into comprehensive cancer care to enhance quality of life and relational well-being.

Keywords: *Cognitive behavioral therapy, Emotion-focused therapy, Sexual dysfunction, Cervical cancer, Psychotherapy, Women's health.*

1. Introduction

Cervical cancer remains a major global health concern, with far-reaching implications not only for physical health but also for psychosocial and sexual well-being. Women diagnosed with cervical cancer often face multiple layers of distress, including anxiety, fear of recurrence, body image concerns, and particularly disruptions in sexual functioning and marital relationships (Mantula, 2024). Despite advancements in medical treatments, addressing the psychological and sexual consequences of the disease is still an overlooked component of holistic cancer care. Sexual dysfunction, including difficulties with desire, arousal, orgasm, and satisfaction, is among the most prevalent and distressing issues reported by these patients and can significantly impair quality of life and relationship satisfaction (Ammari et al., 2023; Cinek, 2025; Van Diest et al., 2023). In this context, psychotherapy-based interventions—particularly Cognitive Behavioral Therapy (CBT) and Emotion-Focused Therapy (EFT)—have gained attention for their potential in mitigating sexual dysfunction and enhancing emotional intimacy among women affected by chronic illnesses such as cancer.

The biopsychosocial impact of cervical cancer often involves long-term consequences that extend beyond medical outcomes. Emotional detachment, depressive symptoms, and reduced sexual self-efficacy are commonly observed in women living with cancer and its treatment aftermath (Firoozi et al., 2022; Safar Mohammadlou et al., 2021). These consequences are not only biologically driven but are also deeply shaped by cognitive, emotional, and relational factors. From a cognitive perspective, negative self-perceptions, fear of rejection, and dysfunctional beliefs about sexuality can lead to avoidance behaviors and impaired sexual functioning (Azartash et al., 2022; Scheer et al., 2023). Emotionally, unresolved distress and lack of emotional expression may lead to disconnection from the partner and relationship burnout (Zolfalipour Maleki & Esmkhani Akbarinejad, 2023). Consequently, sexual dysfunction in women with cervical cancer must be conceptualized and treated within a comprehensive psychological framework.

Cognitive Behavioral Therapy (CBT) has been extensively researched as an evidence-based approach for improving psychological and sexual health. It targets maladaptive cognitions and behavioral patterns that perpetuate dysfunction, aiming to restructure cognitive distortions and encourage adaptive coping strategies. Several studies support the efficacy of CBT in enhancing sexual desire, reducing anxiety associated with intimacy, and improving overall relationship satisfaction in women experiencing sexual problems, including those with underlying medical conditions (Ebrahimi et al., 2023; Ghasemi & Rezaei, 2022). CBT empowers women to identify and challenge negative automatic thoughts about body image, sexuality, and relational expectations, replacing them with healthier beliefs and behaviors. Its structured and goal-oriented nature makes it particularly suitable for clinical populations seeking short- to medium-term improvement in sexual functioning and quality of life (Scheer et al., 2023; Sierra & Ortiz, 2023).

On the other hand, Emotion-Focused Therapy (EFT) offers a different but complementary framework for addressing the emotional undercurrents of sexual dysfunction. Rooted in attachment theory and humanistic psychology, EFT helps individuals access, process, and regulate primary emotions that may be suppressed or avoided due to fear, shame, or trauma. This modality emphasizes the therapeutic alliance and emotional safety within the relationship, enabling clients to repair emotional injuries and strengthen their emotional bonds with their partners (Diest et al., 2023; Nezamalmolki, 2023). In clinical studies, EFT has demonstrated promising outcomes in improving emotional expression, sexual intimacy, and marital satisfaction in women affected by cancer-related sexual dysfunction or infidelity-related trauma (Ammari et al., 2022; Van Diest et al., 2023). The process of emotional disclosure and validation within EFT allows clients to reconnect with their emotional needs and reestablish intimacy with their partners, thereby alleviating psychological blocks to sexual engagement.

Research comparing the efficacy of these two interventions provides valuable insights into their relative strengths. For example, while CBT is often more effective in altering cognitive-behavioral patterns such as avoidance and catastrophizing, EFT is particularly potent in enhancing emotional connectedness and rebuilding trust in intimate relationships (Behrang et al., 2022; Nezamalmolki et al., 2023). Findings from comparative studies indicate that both therapies yield significant improvements in sexual functioning and relational satisfaction, though their mechanisms of action differ. CBT tends to act more directly on sexual functioning parameters such as desire and arousal, whereas EFT may produce more robust effects on components like emotional closeness, pain reduction, and satisfaction (Kazem Zadeh Atoofi et al., 2023; Kolbadinejad

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E-ISSN: 3041-8615

et al., 2022). Such evidence supports the tailored use of either modality depending on the primary source of distress—be it cognitive distortions or emotional disconnection.

In the specific context of Iranian women with cervical cancer, psychological distress and sexual dissatisfaction are compounded by cultural taboos surrounding sexuality and illness disclosure. Shame, guilt, and fear of being stigmatized often prevent women from seeking help or openly discussing their sexual challenges with healthcare providers (Ammari et al., 2023; Ardakhani & Seadatee Shamir, 2022). This silence exacerbates emotional alienation and undermines the quality of marital relationships. Psychotherapy, particularly when culturally adapted, serves as a crucial channel for restoring agency, sexual autonomy, and interpersonal intimacy among affected women. In this regard, both CBT and EFT have shown promise in enhancing marital resilience and sexual satisfaction in culturally conservative populations (Ardakhani & Seadatee Shamir, 2022; Zolfalipour Maleki & Esmkhani Akbarinejad, 2023).

Another important consideration is the long-term efficacy and sustainability of treatment outcomes. Studies have shown that the benefits of CBT and EFT extend beyond the immediate post-treatment period, with improvements in sexual function, emotional regulation, and partner communication maintained at follow-up intervals (Ammari et al., 2023; Firoozi et al., 2022). The durability of these effects is particularly relevant for women with cervical cancer, who may undergo multiple transitions in their medical, relational, and sexual lives. Moreover, integrating psychotherapy with oncological care promotes a biopsychosocial approach that aligns with international guidelines for survivorship care (Diest et al., 2023; Van Diest et al., 2023).

Despite these promising findings, research is still limited in directly comparing the effectiveness of CBT and EFT on sexual dysfunction in women with cervical cancer—a group uniquely vulnerable to sexual and relational disruptions due to the nature of their illness. The current study aims to fill this gap by investigating the comparative efficacy of these two established interventions on various dimensions of sexual function, including desire, arousal, lubrication, orgasm, satisfaction, and pain, among women with cervical cancer.

2. Methods and Materials

2.1. *Study design and Participant*

This study employed a semi-experimental design using a pretest-posttest control group structure. Participants were randomly assigned to two experimental groups and one control group. All groups completed the pretest before the intervention phase. Subsequently, one experimental group received cognitive-behavioral therapy (CBT), while the other underwent emotion-focused therapy (EFT). The control group was placed on a waiting list and received no psychological treatment during the study period. Posttests were conducted for all three groups after the completion of the interventions. Due to the nature of psychological treatments, it was not possible to implement a double-blind design, as participants were aware of their assigned condition (treatment or control). However, to minimize bias, the random assignment of participants to groups was performed by an independent evaluator who was unaware of the specific treatment conditions. The study population consisted of all women diagnosed with cervical cancer who were referred to Vali-e-Asr Hospital in Zanjan in 2024. Based on power analysis (effect size = 0.25, alpha = 0.05, power = 0.80), a sample size of 20 participants per group was deemed adequate for the desired statistical power. To account for potential attrition due to the likelihood of dropout or unforeseen circumstances, the initial sample was increased to 25 per group. Ultimately, the study included 20 participants in each of the two intervention groups and 20 in the control group, yielding a total of 60 participants, selected via purposive sampling and randomly assigned to the respective groups.

2.2. *Measure*

The primary data collection instrument used in this study was the Female Sexual Function Index (FSFI), developed by Rosen et al. in 2000. This 19-item questionnaire assesses six domains of sexual functioning: sexual desire, arousal, vaginal lubrication, orgasm, satisfaction, and pain during intercourse. Items are scored on a five- or six-point Likert scale, with higher scores indicating better sexual functioning. The FSFI total score ranges from 2 to 36, with scores below a certain cutoff indicating the presence of sexual dysfunction. The instrument has demonstrated high reliability, with a Cronbach's alpha of 0.97 for the total scale and subscale reliabilities ranging from 0.82 to 0.96. Its discriminant validity has also been established, making it a reliable tool for identifying differences between clinical and non-clinical populations in terms of sexual functioning. In

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E-ISSN: 3041-8615

this study, the FSFI was administered to all participants before and after the intervention to assess the effectiveness of the therapeutic approaches on their sexual functioning.

2.3. Interventions

The cognitive-behavioral therapy (CBT) group intervention was designed based on established protocols and was delivered over a series of structured sessions. The primary objective of CBT was to help participants identify and modify maladaptive thoughts, beliefs, and behaviors contributing to their sexual dysfunction. Sessions typically included psychoeducation about the cognitive model, awareness and monitoring of automatic thoughts related to body image, sexuality, and intimacy, cognitive restructuring techniques to challenge negative beliefs, and behavioral strategies such as communication skills training and relaxation techniques. Specific modules addressed performance anxiety, avoidance behavior, and the impact of medical conditions such as cervical cancer on sexual self-concept. Group discussions and role-playing exercises were also integrated to facilitate insight and provide corrective experiences. The group format encouraged participants to share experiences, normalize difficulties, and support each other's progress. The therapeutic process emphasized gradual exposure to feared or avoided sexual experiences and the development of a more positive and accepting attitude toward sexuality. The CBT intervention was administered in 10 weekly sessions, each lasting approximately 90 minutes.

The emotion-focused therapy (EFT) intervention was grounded in the principles of emotion theory and focused on enhancing emotional awareness, expression, and regulation in the context of intimate relationships. The treatment aimed to help participants access and process their core emotional experiences related to sexuality, intimacy, and the psychological impact of cancer diagnosis and treatment. Sessions included exercises to help individuals become more attuned to their bodily sensations and emotional responses, identify primary maladaptive emotions such as shame or fear, and work through these in a safe and supportive environment. A key component of EFT was the exploration of attachment needs and unresolved emotional injuries that could be contributing to sexual dysfunction. The therapist guided participants in reprocessing emotional experiences that may have been suppressed or avoided, fostering emotional healing and the development of more adaptive emotional responses. In the group setting, participants were encouraged to express emotions openly and to validate each other's emotional experiences, creating a context of mutual empathy and support. The EFT intervention also consisted of 10 weekly sessions, each lasting around 90 minutes.

2.4. Data Analysis

Data analysis was performed using SPSS version 25. Descriptive statistics including means and standard deviations were computed to summarize participant characteristics and outcome scores. To evaluate the effectiveness of the interventions, inferential statistics were employed, specifically mixed-design analysis of variance (ANOVA) to assess the interaction between group (CBT, EFT, control) and time (pretest, posttest). The Bonferroni post hoc test was used to explore pairwise comparisons among the groups. Prior to conducting ANOVA, assumptions of normality and homogeneity of variances were examined using the Kolmogorov–Smirnov test and Levene's test, respectively. All statistical tests were conducted at a significance level of $p < 0.05$. The analytical approach allowed for the assessment of within-group and between-group differences over time, providing insight into the relative effectiveness of the two therapeutic interventions in improving sexual functioning among women with cervical cancer.

3. Findings and Results

The demographic characteristics of the participants in the three study groups—including the emotion-focused therapy group, the cognitive-behavioral therapy group, and the control group—were statistically compared and showed no significant differences, indicating successful randomization. In terms of educational attainment, the majority of participants in all groups held a bachelor's degree, with 50% in the EFT group, 60% in the CBT group, and 65% in the control group. A smaller proportion of participants held a diploma or associate degree (30% in the EFT group, 15% in the CBT group, and 20% in the control group), while those with a master's degree or higher constituted 20% in the EFT group, 25% in the CBT group, and 15% in the control group. The differences across the groups in educational level were not statistically significant ($\chi^2(4) = 1.98$, $p = 0.74$). Regarding continuous demographic variables, the average age of participants was similar across groups: 36.00 years (SD = 3.80) in the EFT group, 35.75 years (SD = 4.01) in the CBT group, and 35.55 years (SD = 4.32) in the control group, with no significant difference observed ($F(2, 57) =$

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0.34, p = 0.92). Similarly, no significant group differences were found in the duration of illness or years of marriage. The average duration of illness was 2.80 years (SD = 0.95) in the EFT group, 2.30 years (SD = 1.09) in the CBT group, and 2.85 years (SD = 1.13) in the control group. The mean duration of marriage was 6.20 years (SD = 2.71) in the EFT group, 6.60 years (SD = 2.30) in the CBT group, and 6.15 years (SD = 3.05) in the control group. These results confirm that the groups were demographically comparable prior to the intervention.

Table 1

Descriptive Statistics of Research Variables by Group and Time Point

Variable	Time	Emotion-Focused Group (M ± SD)	CBT Group (M ± SD)	Control Group (M ± SD)
Desire	Pretest	3.09 ± 1.12	2.91 ± 1.20	2.76 ± 1.15
	Posttest	4.26 ± 1.06	4.11 ± 1.02	2.61 ± 0.98
	Follow-up	4.32 ± 1.02	3.93 ± 1.01	2.85 ± 0.95
Arousal	Pretest	1.90 ± 0.94	1.58 ± 0.89	1.69 ± 0.76
	Posttest	2.76 ± 0.94	2.73 ± 0.86	1.84 ± 0.63
	Follow-up	2.58 ± 0.79	2.70 ± 0.85	1.92 ± 0.59
Lubrication	Pretest	1.97 ± 1.21	1.36 ± 0.82	1.60 ± 0.90
	Posttest	3.03 ± 1.06	2.51 ± 0.89	1.82 ± 0.79
	Follow-up	2.87 ± 1.02	2.33 ± 0.82	1.95 ± 0.81
Orgasm	Pretest	2.66 ± 0.76	2.32 ± 0.89	2.18 ± 0.86
	Posttest	3.84 ± 0.75	3.50 ± 0.88	2.44 ± 0.94
	Follow-up	3.72 ± 0.74	3.46 ± 0.71	2.40 ± 0.95
Satisfaction	Pretest	2.02 ± 0.80	2.06 ± 0.82	1.90 ± 0.88
	Posttest	3.60 ± 0.88	3.46 ± 0.78	1.84 ± 1.01
	Follow-up	3.48 ± 0.88	3.24 ± 0.70	2.08 ± 0.90
Pain	Pretest	1.74 ± 1.06	1.92 ± 1.03	1.78 ± 0.94
	Posttest	3.42 ± 1.02	3.22 ± 1.01	1.94 ± 0.87
	Follow-up	3.24 ± 0.88	3.16 ± 0.95	2.14 ± 0.79
Total FSFI Score	Pretest	13.38 ± 4.37	12.15 ± 3.67	11.92 ± 4.08
	Posttest	20.91 ± 4.01	19.52 ± 3.29	12.49 ± 3.63
	Follow-up	20.21 ± 3.53	18.81 ± 2.98	12.34 ± 3.01

The descriptive statistics presented in Table 1 reveal notable differences across the three groups in various components of sexual function over time. At baseline (pretest), all groups showed relatively similar scores across subscales, with no marked differences in sexual desire, arousal, lubrication, orgasm, satisfaction, pain, or total FSFI scores, confirming initial homogeneity. However, posttest scores indicate substantial improvements in both the emotion-focused therapy (EFT) and cognitive-behavioral therapy (CBT) groups across all subscales of sexual functioning, while the control group exhibited minimal or no change. For instance, the total FSFI score in the EFT group increased from 13.38 (SD = 4.37) in the pretest to 20.91 (SD = 4.01) post-intervention, and the CBT group rose from 12.15 (SD = 3.67) to 19.52 (SD = 3.29). In contrast, the control group had only a slight increase from 11.92 (SD = 4.08) to 12.49 (SD = 3.63). Similarly, specific subdomains such as desire, arousal, and orgasm demonstrated consistent improvements from pretest to follow-up in both intervention groups, with the EFT group generally exhibiting slightly higher mean scores than the CBT group. Follow-up assessments showed sustained benefits in the experimental groups, though there was a slight reduction compared to posttest scores in some subscales, indicating a modest decline but maintaining gains above baseline. Overall, these descriptive findings suggest that both therapeutic approaches were effective in enhancing sexual function among women with cervical cancer, with a slight advantage observed for emotion-focused therapy in several domains.

Before conducting inferential analyses, the necessary statistical assumptions for mixed-design ANOVA were thoroughly examined and confirmed. To assess the normality of the data distribution across groups and time points, the Kolmogorov–Smirnov test was employed, and results indicated that the distribution of scores for all subscales of the Female Sexual Function Index (FSFI) did not significantly deviate from normality ($p > 0.05$). In addition, Levene's test was used to verify the homogeneity of variances across groups. The results of this test showed no significant differences in variances for any of the dependent variables at each measurement stage ($p > 0.05$), supporting the assumption of homogeneity. Furthermore, the

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E-ISSN: 3041-8615

sphericity assumption was not applicable in this case due to the two-time point comparison (pretest, posttest, follow-up) being analyzed within a mixed-model framework. Collectively, these findings confirmed that the data met the statistical prerequisites for conducting mixed-design ANOVA and subsequent post hoc comparisons with confidence in the validity of the results.

Table 2

Mixed-Design ANOVA Results for the Effectiveness of CBT and EFT on Sexual Dysfunction and Its Subcomponents

Variable	Source of Variation	SS	df	MS	F	p	Effect Size	Power
Desire	Time	23.15	1.81	12.78	73.71	.001	.56	1.00
	Group	44.16	2	22.08	7.21	.002	.20	.92
	Time × Group	13.42	3.62	3.70	21.37	.001	.43	1.00
Arousal	Time	19.52	1.53	12.78	115.29	.001	.67	1.00
	Group	12.51	2	6.26	3.45	.040	.11	.62
	Time × Group	6.47	3.06	2.12	19.10	.001	.40	1.00
Lubrication	Time	23.86	1.58	15.14	167.43	.001	.75	1.00
	Group	21.45	2	10.73	4.34	.020	.13	.73
	Time × Group	5.51	3.15	1.75	19.34	.001	.40	1.00
Orgasm	Time	28.36	1.48	19.16	18.24	.001	.76	1.00
	Group	36.07	2	18.03	9.33	.001	.25	.97
	Time × Group	7.25	2.96	2.45	23.31	.001	.45	1.00
Satisfaction	Time	36.64	1.72	21.26	169.60	.001	.75	1.00
	Group	43.37	2	21.69	11.02	.001	.28	.99
	Time × Group	17.60	3.45	5.11	40.74	.001	.59	1.00
Pain	Time	43.27	1.76	24.57	251.87	.001	.81	1.00
	Group	27.59	2	13.79	5.39	.007	.16	.82
	Time × Group	13.61	3.52	3.86	39.60	.001	.58	1.00
Total Score	Time	1026.89	1.53	672.66	767.30	.001	.93	1.00
	Group	1019.43	2	509.71	13.22	.001	.32	1.00
	Time × Group	347.50	3.05	113.81	129.83	.001	.82	1.00

The mixed-design ANOVA results presented in Table 2 indicate significant main effects for time, group membership, and the interaction between time and group across all subcomponents of sexual dysfunction as well as the total FSFI score ($p < .001$ for all interaction effects). These findings demonstrate that both treatment groups—CBT and EFT—led to significant improvements over time in desire, arousal, lubrication, orgasm, satisfaction, pain, and the overall index. Significant interaction effects also suggest that the pattern of change over time differed between groups, supporting the presence of treatment effects beyond the passage of time. Effect sizes were moderate to large (η^2 ranging from .11 to .93), and power was consistently strong ($\geq .73$), indicating that the sample size was sufficient to detect the observed effects.

Table 3

Bonferroni Post Hoc Comparisons for Between-Group and Within-Time Differences in Sexual Dysfunction

Variable	Source	Reference Group	Comparison Group	Mean Difference	SE	p
Desire	Group	EFT	CBT	0.24	0.32	1.00
	EFT	Control	1.15	0.32	.002	
	CBT	Control	0.91	0.32	.020	
	Time	Pretest	Posttest	-0.74	0.07	.001
	Pretest	Follow-up	-0.78	0.08	.001	
	Posttest	Follow-up	-0.04	0.07	1.00	
Arousal	Group	EFT	CBT	0.08	0.25	1.00
	EFT	Control	0.60	0.25	.060	
	CBT	Control	0.51	0.25	.120	
	Time	Pretest	Posttest	-0.72	0.05	.001
	Pretest	Follow-up	-0.68	0.07	.001	
	Posttest	Follow-up	0.04	0.04	.860	
Lubrication	Group	EFT	CBT	0.56	0.29	.170
	EFT	Control	0.83	0.29	.020	

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Psychology of Woman Journal
E-ISSN: 3041-8615

	CBT	Control	0.28	0.29	1.00	
	Time	Pretest	Posttest	-0.80	0.05	.001
	Pretest	Follow-up	-0.74	0.06	.001	
	Posttest	Follow-up	0.07	0.04	.180	
Orgasm	Group	EFT	CBT	0.31	0.25	.670
	EFT	Control	1.07	0.25	.001	
	CBT	Control	0.75	0.25	.010	
	Time	Pretest	Posttest	-0.87	0.05	.001
	Pretest	Follow-up	-0.81	0.06	.001	
	Posttest	Follow-up	0.07	0.04	1.00	
Satisfaction	Group	EFT	CBT	0.13	0.26	1.00
	EFT	Control	1.09	0.26	.001	
	CBT	Control	0.98	0.26	.001	
	Time	Pretest	Posttest	-0.97	0.06	.001
	Pretest	Follow-up	-0.94	0.06	.001	
	Posttest	Follow-up	0.03	0.05	1.00	
Pain	Group	EFT	CBT	0.03	0.29	1.00
	EFT	Control	0.87	0.29	.020	
	CBT	Control	0.81	0.29	.020	
	Time	Pretest	Posttest	-1.05	0.05	.001
	Pretest	Follow-up	-1.03	0.06	.001	
	Posttest	Follow-up	0.01	0.05	1.00	
Total Score	Group	EFT	CBT	1.33	1.13	.730
	EFT	Control	5.58	1.13	.001	
	CBT	Control	4.25	1.13	.001	
	Time	Pretest	Posttest	-5.16	0.13	.001
	Pretest	Follow-up	-4.97	0.19	.001	
	Posttest	Follow-up	0.19	0.13	.440	

The Bonferroni pairwise comparisons reveal that both the emotion-focused and cognitive-behavioral therapy groups showed significantly greater improvements in most subcomponents of sexual function compared to the control group ($p < .05$), particularly in desire, orgasm, satisfaction, pain, and the total FSFI score. The EFT group outperformed the control group on all components except arousal, with statistically significant differences in desire ($p = .002$), lubrication ($p = .020$), orgasm ($p = .001$), satisfaction ($p = .001$), pain ($p = .020$), and total score ($p = .001$). Similar effects were found for the CBT group, though the difference in lubrication was not significant ($p = 1.00$). Importantly, no statistically significant differences were found between the two intervention groups on any individual component or the total score ($p > .05$), suggesting comparable efficacy. Additionally, across all variables, the posttest and follow-up scores significantly differed from pretest values ($p < .001$), whereas the differences between posttest and follow-up scores were not significant ($p > .05$), indicating that the treatment effects were stable over time (Table 3).

4. Discussion and Conclusion

The aim of the present study was to compare the effectiveness of Cognitive Behavioral Therapy (CBT) and Emotion-Focused Therapy (EFT) in improving sexual function and its dimensions in women diagnosed with cervical cancer. The findings demonstrated that both interventions significantly enhanced various domains of sexual function—including desire, arousal, lubrication, orgasm, satisfaction, and pain—as well as the total score of sexual functioning. These improvements were not only observed at the post-test phase but also maintained during the follow-up, suggesting the relative durability of both treatment approaches. Moreover, while both experimental groups outperformed the control group across most dimensions, there was no statistically significant difference between CBT and EFT, indicating comparable therapeutic effectiveness.

The results of the mixed-design ANOVA revealed significant main effects for time and group membership, as well as significant interaction effects between time and group for all components of sexual dysfunction and the total FSFI score. These findings indicate that the observed improvements were not attributable to time alone, but rather to the psychological interventions administered. Post hoc analyses further clarified that both the CBT and EFT groups significantly outperformed the control group in domains such as desire, orgasm, satisfaction, and pain. Interestingly, while both interventions significantly improved arousal and lubrication over time, between-group differences for these

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E-ISSN: 3041-8615

specific domains were not consistently significant, particularly between the two intervention groups.

The improvement in sexual desire, arousal, and orgasm observed in both CBT and EFT groups aligns with prior findings indicating the efficacy of psychological therapies in enhancing sexual function in women affected by cancer and related sexual trauma. For instance, studies have highlighted that CBT is particularly effective in addressing maladaptive cognitions, body image disturbances, and performance anxiety, which are central to hypoactive sexual desire and arousal difficulties (Azartash et al., 2022; Ghasemi & Rezaei, 2022). Similarly, the increase in orgasmic function in the CBT group may be attributed to the enhancement of cognitive regulation and attentional focus during sexual activity—both of which are explicitly targeted in CBT interventions (Ebrahimi et al., 2023).

Likewise, the effectiveness of EFT in improving sexual satisfaction and reducing pain during intercourse can be attributed to its core emphasis on emotional expression, secure attachment, and the processing of unresolved relational trauma. Several previous studies have shown that EFT enhances emotional intimacy and empathy, which are crucial for the reestablishment of sexual safety and pleasure in couples navigating cancer survivorship (Nezamalmolki, 2023; Van Diest et al., 2023). By fostering open emotional communication, EFT likely contributed to the reduction in genito-pelvic pain and sexual avoidance, as reported by participants in this study—findings consistent with those of Behrang et al., who reported improved marital harmony and sexual assertiveness following EFT in distressed couples (Behrang et al., 2022).

The absence of a significant difference between the CBT and EFT groups in the majority of sexual function domains is noteworthy and speaks to the complementary strengths of these approaches. While CBT works by restructuring dysfunctional beliefs and promoting behavioral activation, EFT emphasizes emotional accessibility and responsiveness within the relationship. This complementarity likely explains the comparable outcomes observed, as both cognitive and emotional regulation are crucial to sexual health. Consistent with this interpretation, prior comparative studies have also found no significant superiority of one approach over the other in treating sexual dysfunction among women with chronic conditions or relational distress (Firoozi et al., 2022; Kazem Zadeh Atoofi et al., 2023). Such findings underscore the value of both treatments as evidence-based options in the context of cancer care.

Moreover, the sustained improvements at follow-up suggest that both CBT and EFT offer not only immediate relief but also longer-term benefits. This is particularly relevant in the context of chronic illnesses like cancer, where psychological challenges persist even after the cessation of medical treatment. Previous research has confirmed the long-term stability of CBT and EFT outcomes in sexual functioning, especially when interventions are well-structured and tailored to individual psychological needs (Ammari et al., 2023; Diest et al., 2023). The durability of these therapeutic gains might also be explained by the group format used in this study, which likely provided additional social support and normalization of sexual challenges—an element known to enhance intervention adherence and outcome maintenance.

Another important aspect of the findings relates to the cultural relevance of the interventions. The effectiveness of both CBT and EFT in an Iranian sample suggests that, despite cultural sensitivities surrounding sexuality, structured and empathic therapeutic approaches can facilitate safe spaces for emotional and cognitive processing. Prior Iranian-based studies have similarly confirmed the acceptability and efficacy of these models among women experiencing sexual distress due to illness, trauma, or relational discord (Ammari et al., 2022; Zolfalipour Maleki & Esmkhani Akbarinejad, 2023). These interventions, when adapted culturally, seem capable of addressing deeply embedded beliefs and taboos, enabling women to reclaim sexual agency and emotional connection within their relationships.

Interestingly, the findings also revealed that both interventions significantly improved the pain subscale of sexual function. Given that pain during intercourse in women with cervical cancer can have both physiological and psychological components, this result underscores the role of emotional processing (in EFT) and behavioral strategies such as relaxation and gradual exposure (in CBT) in reducing genito-pelvic pain. These findings resonate with previous studies highlighting that psychosexual therapies can lead to meaningful improvements in sexual pain even in medically compromised populations (Ardakhani & Seadatee Shamir, 2022; Safar Mohammadlou et al., 2021).

Overall, this study contributes to the growing body of literature demonstrating that addressing the psychological and relational aspects of sexual dysfunction is critical in oncology populations. It provides empirical support for the integration of CBT and EFT into psycho-oncology services, offering patients evidence-based strategies to manage not

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only sexual challenges but also broader emotional and relational disruptions caused by cancer.

5. Limitations and Suggestions

Despite its strengths, the present study has several limitations. First, the sample was limited to women with cervical cancer in a single urban hospital in Iran, which may limit the generalizability of the findings to other populations or settings. Second, the study relied on self-report measures, which may be subject to social desirability bias, particularly given the sensitive nature of sexual health in a culturally conservative context. Third, although follow-up assessments were included, the duration of the follow-up was relatively short and may not capture longer-term fluctuations in sexual function. Additionally, the study did not assess partner variables or relational dynamics directly, which may influence the trajectory of sexual recovery and should be considered in future work.

Future studies should aim to replicate these findings in more diverse and larger populations, including patients from different geographic, ethnic, and cultural backgrounds. Longitudinal studies with extended follow-up periods would be valuable in determining the durability of therapeutic effects over time. Furthermore, future research could explore the moderating role of variables such as attachment style, body image satisfaction, and partner involvement in predicting treatment outcomes. Comparing other therapeutic modalities, such as mindfulness-based therapy, acceptance and commitment therapy, or integrated multi-component models, could also expand our understanding of effective approaches for treating sexual dysfunction in cancer survivors.

Clinicians should consider integrating both CBT and EFT into the standard psycho-oncological care for women with cervical cancer, tailoring the intervention to the specific emotional and cognitive needs of each patient. Training programs for mental health providers working in oncology should include components focused on sexual health to improve sensitivity and competence in addressing these issues. Group-based formats may be particularly beneficial in reducing stigma and promoting shared experiences among participants. Healthcare systems should also prioritize collaborative care models that incorporate psychosexual interventions as part of comprehensive survivorship care.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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E-ISSN: 3041-8615