Enhancing quality of life in Iranian women with breast cancer: the efficacy of psychological interventions. A meta-analysis

Behzad Rigi Kooteh,[1] Abid Mahdavi,[2] Azizollah Mojahed,[1,3] Javad Nadimi,[1] Abdolbaset Rigi Motlagh[4]

[1]Department of Clinical Psychology, School of Medicine, Zahedan University of Medical Sciences; [2]Faculty of Psychology and Educational Sciences, University of Tehran; [3]Health Promotion Research Center, Zahedan University of Medical Sciences; [4]Imam Khomeini Hospital, Khash, Iran

Abstract

This meta-analysis assessed the impact of psychological interventions on the quality of life of breast cancer patients in Iran, reviewing sources from 2006 to 2021, including theses, journals, and international research by Iranian authors. The study analyzed 40 clinical trials with effect sizes, sourced from databases like Magiran, Civilica, Normgs, Scientific-Research Journals, Irandoc, PubMed, Scopus, and PsycINFO, involving 1946 participants. The overall effect size was 0.45, with a significant level of $p<0.001$, indicating a considerable impact on patients' quality of life. The highest effect sizes were d=1.91 and Fisher's z (Zr)=0.84, while the lowest were d=0.28 and Zr=0.14. According to Cohen's interpretation, these interventions have a moderate effect size, suggesting they can effectively improve the quality of life for breast cancer patients. The study highlights the potential of psychological interventions as a non-pharmacological strategy for enhancing patient well-being, emphasizing their importance in breast cancer care in Iran. This research supports the adoption of psychological interventions to improve the quality of life among individuals diagnosed with breast cancer.

Correspondence: Behzad Rigi Kooteh, Department of Clinical Psychology, School of Medicine, Zahedan University of Medical Sciences, Postal Code: 9813913777, Zahedan, Iran.
Tel.: +98-5433522636. Fax: +98-5433518352.
E-mail: Brkpsycho1988@gmail.com

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Introduction

Breast cancer is the most common subcutaneous malignancy diagnosed in women in the Western world, with one in eight women developing breast cancer in their lifetime. This localized disease accounts for 61% of all breast cancer cases diagnosed in the United States, and the 5-year survival rate for this group approaches 98%.[1-3] Clinical features related to the occurrence of cancer and the effects of cancer treatment, especially epidemiological data, show a 50% increase in the incidence of breast cancer among Italian women aged 39 to 44 compared to those aged 20 to 39.[4-6] The prevalence of cancer worldwide is increasing; according to GLOBOCAN's report in 2012, the number of adults suffering from cancer was about 14.1 million, and this number is predicted to rise to about 20 million by 2025.[7] This increase in incidence has also been significant in Iran; 13,776 new cases of breast cancer have been diagnosed there, and its high prevalence will require more attention and care.[8,9] Anxiety is one of the most common psychological symptoms in breast cancer patients, with rates ranging from 10% to 30%.[10] Patients experience anxiety due to the anticipation of negative consequences,[11] uncertainty about the future, disease recurrence, and side effects of treatment during and after treatment experiences.[10,12] The prevalence of depression among breast cancer patients is estimated to be between 10% and 30%, depending on the study population, study design, and the depression scale used. This psychological disorder negatively impacts women's treatment regimens, quality of life, and self-care, leading to decreased immunity and reduced chances of survival.[13,14] Recognizing that quality of life is not a quantitative issue and can have different meanings for different people, the World Health Organization defines it as a multidimensional concept involving people's understanding of values, goals, standards, and individual interests. Factors such as a sense of security, emotional conflicts, personal opinions, goals, and tolerance for failures all influence a person's self-perception. The quality of life in cancer patients can be examined from two perspectives:

the patient's performance (how they cope with the disease and the strategies used to manage the stress of diagnosis and treatment) and the complications arising from cancer diagnosis and treatment.[15,16] The impact of psychological and cultural-social factors on quality of life and their effect on the longevity of cancer patients has been established. In these patients, the type and severity of cancer and its treatment significantly affect their mindset. The mental effects and their impact on quality of life vary based on personality traits and the level of family and social support received. For instance, having a religious or spiritual outlook combined with strong social support can enhance recovery levels in patients. Psychological stress affects the immune system, promoting the growth of cancerous tissue. Evidence suggests that mental stress can alter immune system functioning through various mechanisms. These changes can be direct (weakening of the immune system and hormone release) or indirect (increased smoking and alcohol consumption, insomnia, reduced physical activity due to hopelessness, poor nutrition, and decreased adherence to breast cancer treatment regimens). In breast cancer patients, proper education and information help establish realistic expectations during treatment. Such education increases patients' motivation and willingness to fully engage in treatment processes, ultimately preventing unnecessary stress and anxiety.[17] Gall *et al*. stated that women with breast cancer who had a relationship with God and submitted to Him reported better emotional comfort and lower levels of distress.[18] According to Schreiber and Brockopp, evaluating the belief systems of breast cancer patients is useful for their psychological well-being, as it helps individuals interpret life events, including the experience of the disease, in that way.[19] Additionally, Behzadipour *et al*. demonstrated that cognitive behavioral stress management interventions improve the quality of life and coping strategies of breast cancer patients.[16] Similarly, Esmali *et al*. found that group psychotherapy based on acceptance and commitment can effectively improve the quality of life for patients with breast cancer.[20] In their study, Lu *et al.* showed that psychosocial intervention improved quality of life, increased positive arousal, and reduced symptoms of depression and anxiety among Chinese-American women with breast cancer.[21] Despite these findings, to better support young women with breast cancer, it is necessary to provide more information about their quality of life and psychological distress, as well as their treatment trajectory during cancer. This information can help organize interventions tailored to their real needs or prevent future problems by implementing basic measures. Both young and older patients with breast cancer often experience similar psychological issues related to the trauma of diagnosis, side effects of treatments such as body image and sexual behavior concerns, fear of recurrence, and end-of-life issues. Many psychotherapeutic and supportive approaches have been effective across different groups of breast cancer patients. To ensure the effectiveness of psychological approaches and interventions, clarify conflicting opinions, and reveal the precise effectiveness of certain treatment approaches, this research aims to investigate whether there is a significant difference in the effectiveness of psychotherapy approaches in reducing psychological injuries among women with breast cancer.

Methods

The current research is a meta-analysis based on the proposed research objective. Meta-analysis is a method that helps resolve contradictions in psychological research and other behavioral sciences, leading to more accurate results. Therefore, the meta-analysis, which combines numerical results obtained from several studies, provides an accurate and comprehensive estimate.[22] The fundamental principle in studies based on meta-analysis is to calculate effect sizes for individual studies, convert them to a common metric, and combine them to achieve an average effect. In meta-analysis, by using statistics such as T, F, and X, the effect size index related to r can be estimated.[23] The statistical population of the present study includes all research, doctoral theses, master's theses, and articles published in journals. The findings of this study are based on research conducted between 2006 and 2021 on the effectiveness of psychological interventions on the quality of life of breast cancer patients in Iran. The research met the necessary methodological conditions, including hypothesis formulation, research method, population, purpose, sample size, sampling method, measurement tool, validity and reliability of the measurement tool, statistical analysis, and accuracy of statistical calculations. In total, out of 73 studies, 40 studies with 40 effect sizes were examined as study samples. The most important aspect of meta-analysis is searching for studies in different sources.[24] To search for articles, they were extracted from databases such as Magiran, Civilica, Normgs, Scientific-Research Journals, Irandoc, PubMed, Scopus, and PsycINFO. The sources searched in the current research included master's and doctoral theses (researchers' reference to digital resources of libraries and universities), published as conference papers or in scientific research journals. Scientific research journals in the fields of psychology, educational sciences, medicine, the Academic Jihad information resource bank, and Iranian document centers were used and analyzed. These sources investigated the impact of psychological interventions (psychological-educational) on the quality of life of patients diagnosed with cancer, as well as articles published by Iranian researchers in international journals abroad. The search was conducted independently by two authors. The search strategy was a combination of the following keywords: "Breast Cancer"/ ~Psychological Interventions/ Psychological OR Interventions/ "Quality of Life"/ "Meta-Analysis"/ +Breast Cancer/ Cancer OR Women. All articles found in the search process were entered into EndNote software (version X8). After removing duplicates, two researchers independently reviewed the titles and abstracts according to the criteria within the repository. In case of disagreement between the two individuals, the internal criteria were checked by a third researcher.[25] Therefore, all the research that met the necessary methodological conditions was analyzed. In this way, all sources that met the internal criteria were used. In other words, the internal criteria for the meta-analysis are as follows: i) the subject of the research is "psychological interventions and quality of life in patients diagnosed with breast cancer"; ii) the research must have been conducted in a group setting. Individual studies, reviews, and correlations were not accepted for analysis; iii) the research should be quasi-experimental; iv) valid tools and accurate scales with sufficient validity and reliability must have been used; v) the target population is breast cancer patients. The tool used in this research was the content analysis checklist. This checklist was employed to select dissertations, research projects, and research articles that met the inclusion criteria and to extract the necessary information for performing a meta-analysis of their content. The aforementioned checklist included the following components: the title of the conducted research, the name of the researcher, the investigated variable, the sample size, the statistics used, the amount of information, and the level of significance. Meta-analysts can calculate the effect size by using the mean, variance, standard deviation, and statistics used by the groups. However, the most common indices are r and d, with d being used for group differences and r for correlation studies. Therefore, according to the list of research studies and by referring to them while considering the mentioned criteria, 40 studies with 40 effect sizes were approved. The detailed list is provided in Table 1 along with descriptive information, and the calculations were done manually. The steps for implementing this meta-analysis were based on the meta-analysis steps of Hewitt and Kramer and are as follows, which were used in the current research:[26] i) definition of research variables; ii) searching databases; iii) reviewing research studies; iv) calculation of effect size for each study; v) combination of effect sizes from studies; vi) determining the significance of combined studies.

Table 1. Checklist of meta-analysis studies on the effectiveness of psychological interventions on the quality of life in patients diagnosed with breast cancer in Iran (2006-2021) according to the method of Hewitt and Kramer.[26]

	Intervention	Authors (year)	Number of sessions	Sample size	Statistical method	Meaningfulness
1	Behavioral activation group therapy	Shareh (2016)[27]	8 sessions	Intervention group: 15 Control group: 15	MANOVA	0.001
2	Humor therapy	Rad *et al.* (2016)[28]	8 sessions	Intervention group: 29 Control group: 29	Independent samples t-test; ANOVA	0.001
3	Self-care program using Orem's self-care model	Afrasiabifar *et al.* (2018)[29]	8 sessions	Intervention group: 40 Control group: 40	Independent samples t-test; Chi square test; Fisher's exact test	0.07
4	Self-care education	Barandeh *et al.* (2017)[30]	1 session	Intervention group: 32 Control group: 32	Independent samples t-test; Chi square test; Fisher's exact test	<0.001
5	Yoga	Yazdani (2015)[31]	8 sessions	Intervention group: 20 Control group: 20	Independent samples t-test; paired sample t-test; Mann-Whitney U test; Chi square test; Fisher's exact test	0.001
6	Five a model self-management	Kalhor *et al.* (2019)[32]	2 sessions	Intervention group: 45 Control group: 45	Independent samples t-test; paired sample t-test	0.001
7	Benson relaxation intervention	Salehi *et al.* (2012)[33]	21 sessions	Intervention group: 25 Without a control group	Paired sample t-test	0.001
8	Acceptance and commitment therapy	Esmi *et al.* (2020)[34]	8 sessions	Intervention group: 15 Control group: 15	Mixed ANOVA	0.05
9	Nurses' supportive and educative care	Salehi *et al.* (2016)[35]	8 sessions	Intervention group: 45 Without a control group	Paired sample t-test	0.001
10	Spiritual treatment group	Bahreinian *et al.* (2017)[36]	12 sessions	Intervention group: 12 Control group: 12	ANOVA	0.001
11	Cognitive-behavioral stress management	Habibi *et al.* (2017)[37]	10 sessions	Intervention group: 20 Control group: 20	MANOVA	0.001
12	Cognitive behavioral stress management intervention	Behzadipour *et al.* (2013)[16]	10 sessions	Intervention group: 15 Control group: 15	MANOVA	<0.001
13	Discharge planning	Salmani *et al.* (2016)[38]	6 sessions	Intervention group: 35 Control group: 34	Independent samples t-test; Chi square test; Fisher's exact test	<0.001
14	Coping skills training program	Akbari *et al.* (2015)[39]	8 sessions	Intervention group: 17 Control group: 17	MANOVA	0.001
15	Gottman group cognitive-systemic educational based intervention	Heidarian *et al.* (2019)[40]	8 sessions	Intervention group: 10 Control group: 10	Independent samples t-test; mixed ANOVA	0.001
16	Group poetry therapy	Gozashti *et al.* (2016)41	8 sessions	Intervention group: 20 Control group: 40	Independent samples t-test; Mann-Whitney U test; Chi square test	0.02
17	Group psychotherapy based on acceptance and commitment	Esmali *et al.* (2016)20	8 sessions	Intervention group: 15 Control group: 15	ANOVA	0.001
18	Psycho-educational intervention	Shafieitabar *et al.* (2013)[42]	10 sessions	Intervention group: 12 Control group: 12	ANOVA	0.05
19	Group cognitive therapy and group Islamic-based spiritual intervention	Moradizallani *et al.* (2020)[43]	8 sessions	Intervention group: 13 Control group: 13	ANCOVA	0.83
20	Educational sessions for couples	Sharbafchi *et al.* (2019)[44]	3 sessions	Intervention group: 21 Control group: 24	Independent samples t-test; Mann-Whitney U test	0.01
21	4-factor psychotherapy (awareness, hope, relationship therapy and behavioral regulation)	Monemi Motlagh and Shoa Kazemi (2012)[45]	8 sessions	Intervention group: 15 Control group: 15	Paired sample t-test; ANOVA	0.03
22	Yoga	Yazdani and Babazade (2014)[46]	8 sessions	Intervention group: 20 Control group: 20	Independent samples t-test; paired sample t-test; Mann-Whitney U test; Chi square test	0.005

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Table 1. Continued from previous page.

	Intervention	Authors (year)	Number of sessions	Sample size	Statistical method	Meaningfulness
23	Reflexology	Pedram Razi *et al.* (2012)[47]	3 sessions	Intervention group: 30 Control group: 30	Independent samples t-test; paired sample t-test; Mann-Whitney U test; Chi square test	0.001
24	Family-centered empowerment model	Shirvani *et al.* (2017)[48]	10 sessions	Intervention group: 35 Control group: 35	Independent samples t-test; paired sample t-test	<0.001
25	Cognitive-behavioral group therapy	Moradi Menesh and Babakhani (2018)[49]	8 sessions	Intervention group: 16 Control group: 16	MANOVA	0.001
26	Group intervention based on acceptance and commitment therapy	Heidarian *et al.* (2020)[50]	8 sessions	Intervention group: 10 Control group: 10	Independent samples t-test; ANOVA	0.001
27	Stress management and relaxation training	Safarzade *et al.* (2013)[51]	10 sessions	Intervention group: 9 Control group: 9	Repeated measures ANOVA	0.002
28	Acceptance and commitment therapy	Omidbeygi *et al.* (2020)[52]	10 sessions	Intervention group: 15 Control group: 15	Mixed ANOVA	0.008
29	Benson relaxation method	Shariati *et al.* (2010)[53]	21 sessions	Intervention group: 25 Without a control group	Paired sample t-test	0.024
30	Group counseling	Heravi Karimovi *et al.* (2006)[54]	5 sessions	Intervention group: 63 Control group: 51	Wilcoxon signed-rank test; Mann-Whitney U test	0.001
31	Group counseling	Karimvi *et al.* (2006)[55]	9 sessions	Intervention group: 82 Control group: 82	Independent samples t-test; Chi square test	0.001
32	Mindfulness based on stress reduction program	Akbari *et al.* (2014)[56]	8 sessions	Intervention group: 17 Control group: 17	Repeated measures MANOVA	0.001
33	Peer-lead education	Sharif *et al.* (2012)[57]	4 sessions	Intervention group: 49 Control group: 50	Independent samples t-test; Chi square test; MANOVA	<0.001
34	Social capital	Hosseini *et al.* (2015)[58]	12 sessions	Intervention group: 15 Control group: 14	Independent samples t-test; Chi square test; paired sample t-test; Fisher's exact test	0.001
35	Palliative care education	Hosseini *et al.* (2022)[59]	8 sessions	Intervention group: 23 Control group: 23	Independent samples t-test; Chi square test; repeated measures ANOVA	0.003
36	Cognitive-behavioral therapy (CBT) and spiritual-religious intervention (SRI)	Ghahari *et al.* (2017)[60]	8 sessions	Intervention group: 30 (CBT=15; SRI=15) Control group: 15	ANOVA	0.16
37	Religious-spiritual psychotherapy	Nasiri *et al.* (2019)[61]	6 sessions	Intervention group: 35 Control group: 35	Repeated measures ANOVA; independent t-test Mann-Whitney test; Fisher's exact test Chi-square test	0.002
38	Mindfulness-based cognitive therapy	Olyaie *et al.* (2017)[62]	8 sessions	Intervention group: 25 Control group: 25	ANOVA	<0.001
39	Psychosexual counseling	Fatehi *et al.* (2019)[63]	6 sessions	Intervention group: 51 Control group: 49	Independent samples t-test; Chi square test	0.001
40	Stress management model	Koolaee *et al.* (2015)[64]	10 sessions	Intervention group: 10 Control group: 9	Independent samples t-test; paired sample t-test	0.009

MANOVA, multivariate analysis of variance; ANOVA, analysis of variance.

Results

From a total of 73 studies, 40 studies, including 1946 participants, met the eligibility criteria for the meta-analysis.[16,20,27-64] The psychological interventions used in the research included behavioral activation, laughter therapy, self-care training, acceptance and commitment therapy, Benson relaxation, supportive and spiritual care, spiritual group therapy, cognitive-behavioral stress management, discharge programs, coping skills training, education based on Guttman's cognitive-behavioral therapy, group poetry therapy, group psychotherapy based on acceptance and commitment, psychological training, group spirituality, reflexology, family empower-

ment, mindfulness-based stress reduction, peer education, social capital, and palliative care during the period from 2006 to 2021. In this section, based on the data provided in the report of each study, the effect size of treatment patterns was calculated. For this purpose, the effect size was calculated according to Hewitt and Kramer's meta-analysis steps.[26] Then, all studies were combined by converting each effect size r to Fisher's z (Zr), calculating their average, and finally converting it back to the effect size. Table 2 shows the level of significance (p-value), z-score, r, Cohen's d, and Zr for each of the studies. The most important goal of meta-analysis is to combine the findings of multiple studies into a single composite effect size. This is achieved by calculating the average effect size of the studies. In addition, Table 3 presents the combined results of the effect sizes of the reviewed studies. Based on the results obtained from Table 3, the average effect size from the studies was 0.45. Additionally, the total value of Zr is 19.43. Table 4 shows the significance of the combined studies, considering the overall z values and average z values. According to the results from Table 4, the combined significance level of the studies conducted was $p<0.001$, indicating the significance of the total effect size of psychological studies on improving

Table 2. The results of a meta-analysis on the effectiveness of psychological interventions on the quality of life in patients diagnosed with breast cancer in Iran (2006-2021), according to the method of Hewitt and Kramer.

Research number	p-value	z-score	r	Cohen's d	Zr
1	0.001	3.090	0.56	1.35	0.633
2	0.001	3.090	0.40	1.01	0.424
3	0.07	1.476	0.16	0.32	0.161
4	0.001	3.719	0.46	1.04	0.497
5	0.001	3.090	0.48	1.09	0.523
6	0.001	3.090	0.32	0.68	0.332
7	0.001	3.090	0.61	1.54	0.709
8	0.05	1.645	0.30	0.63	0.310
9	0.001	3.090	3.090	1.04	0.479
10	0.001	3.090	3.090	1.62	0.741
11	0.001	3.090	3.090	1.09	0.523
12	0.005	3.917	3.719	1.81	0.811
13	0.001	3.090	3.090	0.08	0.388
14	0.001	3.090	3.090	1.22	0.576
15	0.001	3.090	3.090	1.91	0.848
16	0.03	1.188	1.881	0.49	0.245
17	0.001	3.090	3.090	1.35	0.365
18	05/0	1.645	1.645	0.70	0.343
19	046/0	2.157	2.751	0.72	0.354
20	0.001	2.623	2.326	0.72	0.354
21	0.03	1.188	1.881	0.75	0.365
22	0.005	3.090	3.090	1.90	0.523
23	0.001	3.090	3.090	0.85	0.412
24	0.001	3.917	3719	0.98	0.472
25	0.001	3.090	3.090	1.28	0.604
26	0.001	3.090	3.090	1.91	0.848
27	0.002	3.090	3.090	1.91	0.848
28	0.008	3.090	3.090	1.35	0.633
29	0.024	2.054	2.054	0.90	0.436
30	0.001	3.090	3.090	0.58	0.288
31	0.001	3.090	3.090	0.49	0.245
32	0.001	2.326	2.623	0.85	0.412
33	0.001	3.090	3.090	0.65	0.321
34	0.001	3.090	3.090	1.39	0.648
35	0.003	3.090	3.090	1.01	0.485
36	0.16	0.995	0.599	0.28	0.141
37	0.002	3.090	3.090	1.22	0.576
38	0.001	3.719	3.917	1.25	0.590
39	0.001	3.090	3.090	0.58	0.288
40	0.009	3.090	3.090	1.18	0.811

Table 3. Combining the results of studies on the effectiveness of psychological interventions on the quality of life in patients diagnosed with breast cancer.

Number of effect size	Overall Zr	Overall study effect size
40	19.43	0.45

Table 4. Significance of combined effectiveness studies.

Number of studies	Overall z-values	Average z-values	Combined significance
40	114.12	18.04	<0.001

the quality of life in patients diagnosed with breast cancer in Iran. The overall effect size of the present study is Es=0.45, which is medium and significant based on Cohen's D interpretation table ($p<0.001$).

Discussion

Breast cancer is the most common cancer among Iranian women and has significant emotional and psychological effects.[65,66] In recent decades, substantial progress has been made in developing psychosocial interventions for cancer patients.[67] Depression and anxiety are the most prevalent mental health issues among these patients, significantly impacting their quality of life for several years after diagnosis. Many studies indicate that breast cancer patients often adapt to the psychological challenges associated with cancer and manage the disease and its related issues successfully. However, a small percentage (about 30%) experience persistent psychosocial problems and concerns, for which supportive interventions in emotional, psychological, social, and spiritual areas are beneficial.[68,69] In terms of family interactions, family structure and relationships are crucial factors affecting the quality of life for breast cancer patients. The support of the patient's spouse is particularly vital, as is the quality of marital life and the psychological and socioeconomic conditions of the family prior to the illness. These factors play an essential role in coping with the disease and its consequences. Numerous studies also show that if the marital bond is strong before the onset and progression of the disease, it will not disrupt their relationship; in fact, it may even strengthen it. However, if communication is impaired, the illness can exacerbate stress in couples.[5] Recent evidence suggests that due to the threatening nature of cancer, a diagnosis significantly increases patients' spiritual needs.[70] These needs can create existential crises, jeopardizing self-confidence and religious faith. Additionally, interpersonal relationships may suffer due to uncertainty about the future, and previous coping mechanisms may seem inadequate. Hospitalization can also lead to feelings of loneliness.[71] Other findings indicate that engaging in devotional and religious activities can improve the quality of life for breast cancer patients and increase their lifespan. Through prayer and worship, patients often develop a positive outlook on breast cancer and adapt more easily.[72] Support measures are effective in enhancing the general health status and quality of life for patients undergoing chemotherapy. Given the temporary nature of side effects from auxiliary treatments, it is possible to improve family cohesion and strengthen the patient's support network by holding counseling sessions with patients and their families to explain the current situation. This approach can significantly enhance the physical, mental, and emotional well-being of the patient.[65,66] In addition, encouraging the patient to participate in social circles, arranging support groups and membership in relevant associations, and trying to strengthen social relationships can help improve her social functioning.[73] Research conducted using the meta-analysis method, by integrating the results of several studies carried out on different samples, provides a more comprehensive view of the extent of various effects. These studies can demonstrate the effectiveness of different treatment models in diverse cultural contexts. Therefore, by implementing the therapeutic techniques of a specific model on samples from a single culture and conducting various studies, a meta-analysis of their results can offer more coherent views on the effectiveness of that therapeutic model in a specific culture.[74]

The present meta-analysis also examined the effectiveness of group psychological interventions on the quality of life of women with breast cancer by compiling the results of 40 studies conducted on Iranian patients, published both domestically and internationally. The results of this meta-analysis showed the effectiveness of psychological interventions at a level of 0.45, which is significant at the $p<0.001$ level. No previous meta-analysis conducted in the country regarding this issue was found to compare with the results of the present research. However, it can be said that the findings of this research align with the results of the meta-analyses by Faller *et al*.,[74] Rehse and Pukrop,[75] and Kalter *et al*.,[76] who reviewed 198 studies with a sample size of 22,238 patients in a meta-analysis. Based on the findings of this research, small to medium significant effects were observed for individual and group psychotherapy, and these effects were stable for more than 6 months. The reports from these researchers showed that the longer the psychological interventions are, the more lasting and significant their effects will be on reducing emotional distress and increasing the quality of life for people with breast cancer. The meta-analysis by Rehse and Pukrop,[75] which reviewed the results of 37 published studies on the effectiveness of psychosocial interventions on the quality of life in cancer patients, found an effect size of 0.31. This indicates the usefulness of psychosocial interventions in improving the quality of life for cancer patients. Additionally, the meta-analysis by Kalter *et al*.,[76] which included 61 randomized controlled trials involving 4217 breast cancer patients, examined the effects of psychotherapy on quality of life, emotional functioning, and social functioning. They concluded that psychological interventions have a moderate effect on quality of life (0.21), emotional functioning (0.20), and social functioning (0.18), and improved daily performance. Finally, in a meta-analysis of 78 articles from 1970 to 2012, De La Torre-Luque *et al*. demonstrated that psychological interventions, with an effect size of 0.30, were able to improve the quality of life for cancer patients.[77]

Limitations

Among the limitations of the current research is the lack of access to unpublished studies in this field, such as certain theses related to this issue, as well as the loss of some research due to incomplete reporting of statistical indicators. Finally, considering that it is insufficient to simply examine a method of implementing

interventions and compare it with no treatment, it is suggested that meta-analyses be conducted to compare the effectiveness of group interventions with individual interventions. It is also necessary to examine and compare the effectiveness of different treatment models and approaches to develop a comprehensive understanding that allows us to determine which treatment approaches and methods of implementing interventions (individual or group) are more effective in our society. It is also recommended to investigate the effect of moderating variables in future meta-analyses.

Conclusions

This meta-analysis demonstrates that psychological interventions substantially improve the quality of life for breast cancer patients in Iran, suggesting their effectiveness as a non-pharmacological treatment. It recommends incorporating these interventions into breast cancer care strategies in Iran, emphasizing their potential to enhance patient outcomes and support holistic treatment. Future research could explore the specific mechanisms through which these interventions exert their effects and evaluate their applicability across different cultural contexts.

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