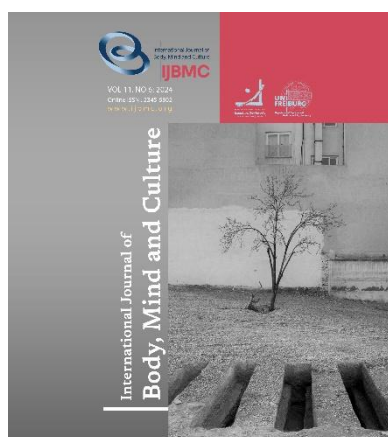


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## Introduction

Cancer remains one of the leading causes of death worldwide, with breast cancer representing a significant proportion of cases among women. According to the International Agency for Research on Cancer (IARC),

# Comparative Effects of Acceptance and Commitment Therapy (ACT) and Intensive Short-Term Dynamic Psychotherapy (ISTDP) on Depression, Alexithymia, Quality of Life, and Mental Health in Women with Breast Cancer

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## ABSTRACT

**Objective:** This study examines the comparative effectiveness of Acceptance and Commitment Therapy (ACT) and Intensive Short-Term Dynamic Psychotherapy (ISTDP) on depression, alexithymia, quality of life and mental health in women with breast cancer.

**Methods and Materials:** A randomized controlled trial with a pre-test-post-test design was conducted, involving 36 participants assigned to ACT, ISTDP, and control groups. The participants completed the Toronto Alexithymia Scale (1994), Beck Depression Inventory (1996), WHOQOL-BREF Questionnaire, and Witt and Weir Mental Health Scale (1983) before and after the interventions. The experimental groups received the respective ACT and ISTDP interventions. Data were analyzed using MANCOVA and Bonferroni post-hoc tests.

**Findings:** Both ACT and ISTDP interventions significantly improved depression, alexithymia, quality of life, and mental health scores ( $p < 0.05$ ), with no significant differences between the therapies in effectiveness.

**Conclusion:** These findings indicate that both ACT and ISTDP may effectively enhance mental health and quality of life in women with breast cancer, supporting their use as valuable components of comprehensive cancer care.

**Keywords:** Acceptance and Commitment Therapy, Depression, Quality of Life, Mental Health.

approximately 14.1 million new cancer cases and 8.2 million cancer-related deaths occur globally each year (Ferlay et al., 2015). Breast cancer, specifically, has a profound impact not only on physical health but also on mental and emotional well-being (Davoudi-Monfared et al., 2023). Patients with breast cancer frequently

experience elevated levels of psychological distress, including depression, anxiety, and diminished quality of life, which can complicate both treatment and recovery (Bland et al., 2023; Fritzsche et al., 2019; Fritzsche et al., 2020). Addressing the psychological needs of cancer patients, therefore, has become a critical focus in oncology, with psychosocial interventions showing promise in enhancing both mental health and overall quality of life (Fritzsche et al., 2019; Goli, 2016).

In developing countries like Iran, where breast cancer is the most common cancer among women, the increasing rates of cancer incidence are partly attributable to rapid social and lifestyle changes (Dolatkhah et al., 2015). Cancer now ranks as the third leading cause of death in Iran, following cardiovascular diseases and accidents (Mousavi et al., 2009). The high prevalence of psychological distress among cancer patients highlights the need for effective mental health interventions tailored to this population. Studies show that between 20-50% of cancer patients experience significant symptoms of depression and anxiety, underscoring the importance of comprehensive care that addresses both physical and psychological aspects of cancer (Razzouk, 2016).

For breast cancer patients, psychological challenges such as depression and alexithymia (a limited ability to understand and express emotions) are common and significantly impact quality of life. Alexithymia, characterized by difficulties in identifying and describing emotions, limited imagination, and an externally oriented cognitive style, is known to reduce emotional processing capabilities, thereby increasing susceptibility to mental and physical health issues (Izard, 2013; Luminet et al., 2021). Depression and alexithymia not only compromise psychological resilience but also hinder social functioning and adaptation to the illness (Teodoro et al., 2018). As a result, effective psychotherapeutic interventions are needed to help breast cancer patients manage these symptoms and enhance their quality of life.

Among the therapies used to address psychological issues in cancer patients, Acceptance and Commitment Therapy (ACT) and Intensive Short-Term Dynamic Psychotherapy (ISTDP) have shown promise in improving mental health outcomes. ACT is a form of behavioral therapy that seeks to increase psychological flexibility, helping individuals accept difficult emotions

and thoughts while committing to actions that align with their personal values (Bond et al., 2015; Stockton et al., 2019). This approach is particularly relevant for cancer patients, as it encourages adaptive coping mechanisms and helps patients maintain a quality life even in the presence of distress (Asadallah Salmanpour & Pasha, 2023; Doorley et al., 2020). In contrast, ISTDP is a psychodynamic approach that focuses on unlocking repressed emotions and resolving unconscious conflicts, with the aim of reducing symptoms associated with emotional distress (Davanloo, 1999; Johansson et al., 2014; Nakhaei Moghadam et al., 2024). By fostering rapid emotional processing, ISTDP can be particularly effective for patients facing intense psychological challenges, such as those associated with cancer diagnosis and treatment.

While both ACT and ISTDP are valuable in addressing psychological distress, limited research has directly compared their effectiveness in cancer patients. Comparative studies on these therapies could provide critical insights into their respective benefits for improving psychological resilience, quality of life, and emotional well-being among breast cancer patients. Such insights could inform clinical practices, helping practitioners select the most effective interventions based on individual patient needs and therapy goals.

This study aims to address this gap by comparing the effectiveness of ACT and ISTDP in improving psychological outcomes in women with breast cancer. Specifically, it examines the impact of these therapies on depression, alexithymia, quality of life, and overall mental health. By evaluating the differential effects of ACT and ISTDP, this research seeks to contribute to the evidence base for psychotherapeutic interventions in oncology and offer guidance for mental health practitioners in the field.

## Methods and Materials

### *Study Design and Participants*

This study utilized a randomized controlled trial with a parallel-group design to compare the effects of Acceptance and Commitment Therapy (ACT) and Intensive Short-Term Dynamic Psychotherapy (ISTDP) on psychological outcomes in women with breast cancer. Randomization and allocation concealment were implemented to reduce potential selection and allocation biases. Due to the nature of the psychological

interventions, blinding of participants and therapists was not feasible; however, data analysis was conducted by a researcher blinded to group assignments to minimize bias.

Participants were recruited from the oncology departments of Firouzgar and Imam Khomeini Hospitals in Tehran, Iran, from September 2020 to January 2021. The inclusion criteria were as follows: (1) women with a confirmed diagnosis of breast cancer; (2) age between 30-60 years; (3) completion of primary cancer treatment (surgery, chemotherapy, or radiotherapy); and (4) expressed interest in receiving psychological support as part of the study. Exclusion criteria included (1) concurrent participation in other psychotherapeutic treatments; (2) severe psychiatric disorders (e.g., psychosis, severe depression with suicidal ideation); and (3) cognitive impairments that could interfere with the therapy process.

A sample size of 36 participants was calculated based on an a priori power analysis ( $\alpha = 0.05$ , power = 0.80) to detect medium effect sizes for the primary outcomes, with equal allocation to the ACT, ISTDP, and control groups.

#### *Data Collection Tools*

**Toronto Alexithymia Scale:** This scale includes three subscales: Difficulty in Identifying Feelings (7 items), Difficulty in Describing Feelings (5 items), and Externally Oriented Thinking (8 items). Responses were scored on a five-point Likert Scale ranging from 1 (completely disagree) to 5 (completely agree). The scale's validity and reliability were confirmed by Kisanga & Ireson (2016), and its construct validity was established by Bar-On through correlation with the Bar-On Emotional Intelligence Inventory. The scale's validity was reported at 0.72 and reliability at 0.87 (Miri & Zahiri, 2024; Roshandel et al., 2022; Salemi et al., 2023).

**Beck Depression Inventory:** Originally developed by Beck et al. (1961) and revised in 1996, this self-report instrument assesses the severity of depression in individuals aged 13 and older (Beck et al., 1996). It includes 21 items that evaluate symptoms such as sadness, feelings of failure, and guilt. Each item is scored from 0 to 3, with total scores ranging from 0 to 63. The inventory's validity is 0.87 and its reliability is 0.74 (García-Batista et al., 2018; Molavi et al., 2018; Sauletzhanovna et al., 2024).

**WHOQOL-BREF Questionnaire:** A shortened version of the 100-item WHOQOL questionnaire, the WHOQOL-BREF includes 26 items assessing overall health and quality of life. It evaluates four domains: physical health (7 items), mental health (6 items), social relationships (3 items), and environmental health (8 items). Each item is rated on a 5-point Likert scale. Cronbach's alpha values for the domains are 0.82 (physical health), 0.81 (mental health), 0.80 (environmental health), and 0.68 (social relationships) (Rahmani et al., 2018; Skevington et al., 2004).

**Mental Health Inventory:** Developed by Witt and Weir (1983), this 28-item instrument measures psychological well-being (14 items) and psychological distress (14 items) on a five-point Likert scale. Validity was assessed through correlation coefficients between scores of healthy subjects on two occasions separated by two weeks, showing significant values of 0.90 for psychological well-being and 0.89 for psychological distress (Heubeck & Neill, 2000; Navah et al., 2020).

#### *Interventions*

**ACT Group:** Participants in the ACT group received 8 weekly sessions of Acceptance and Commitment Therapy, each lasting 90 minutes. The ACT protocol focused on increasing psychological flexibility through the six core processes of ACT: acceptance, cognitive defusion, being present, self-as-context, values, and committed action (Bond et al., 2015; Stockton et al., 2019). Sessions were conducted by licensed clinical psychologists trained in ACT techniques, and adherence to the protocol was monitored by an independent supervisor through random session recordings to ensure fidelity.

**ISTDP Group:** Participants in the ISTDP group also received 8 weekly sessions, each lasting 90 minutes. The ISTDP protocol emphasized rapid emotional processing and resolving unconscious conflicts contributing to psychological distress. Techniques included unlocking unconscious emotions, managing resistance, and addressing defense mechanisms (Davanloo, 1999; Johansson et al., 2014). Licensed clinical psychologists with specialized training in ISTDP delivered the sessions, with regular supervision to maintain adherence to the therapeutic model.

**Control Group:** The control group did not receive any structured psychotherapeutic intervention but

continued to receive standard medical care and support services provided by the hospital. This group served as a baseline for evaluating the impact of the psychotherapeutic interventions.

### Data analysis

Data were analyzed using SPSS version 20. Descriptive statistics, including means, standard deviations, and frequencies, were computed for baseline and post-intervention variables. A multivariate analysis of covariance (MANCOVA) was performed to examine the effects of the interventions on the dependent variables (depression, alexithymia, quality of life, and mental health) while controlling for baseline scores.

The choice of MANCOVA was based on the need to analyze multiple dependent variables simultaneously

while controlling for initial differences between groups. Assumptions of MANCOVA, including homogeneity of regression slopes, normality, and equality of error variances, were checked. Levene's test confirmed homogeneity of variances ( $p > 0.05$ ), and no violations of normality were observed. Bonferroni post-hoc tests were conducted to identify specific group differences where significant effects were found.

### Findings and Results

Demographic data for participants in the ACT, ISTDP, and control groups are presented in Table 1. Variables include age, education level, marital status, and employment status, ensuring that groups are comparable on key characteristics.

**Table 1**

*Demographic Characteristics of Participants in Each Group*

| Characteristic      | ACT Group (n=12) | ISTDP Group (n=12) | Control Group (n=12) | p-Value ( $\chi^2$ ) |
|---------------------|------------------|--------------------|----------------------|----------------------|
| Age (Mean $\pm$ SD) | 45.3 $\pm$ 8.1   | 44.8 $\pm$ 7.9     | 46.1 $\pm$ 8.4       | 0.76                 |
| Education Level     |                  |                    |                      |                      |
| High School         | 4 (33.3%)        | 5 (41.7%)          | 6 (50%)              | 0.85                 |
| Bachelor's Degree   | 5 (41.7%)        | 4 (33.3%)          | 4 (33.3%)            |                      |
| Graduate Degree     | 3 (25%)          | 3 (25%)            | 2 (16.7%)            |                      |
| Marital Status      |                  |                    |                      |                      |
| Married             | 8 (66.7%)        | 7 (58.3%)          | 8 (66.7%)            | 0.92                 |
| Single              | 4 (33.3%)        | 5 (41.7%)          | 4 (33.3%)            |                      |
| Employment Status   |                  |                    |                      |                      |
| Employed            | 6 (50%)          | 6 (50%)            | 5 (41.7%)            | 0.88                 |
| Unemployed          | 6 (50%)          | 6 (50%)            | 7 (58.3%)            |                      |

**Note:** p-values are derived from chi-square ( $\chi^2$ ) tests, assessing the homogeneity of demographic characteristics across groups.

Table 2 presents the mean and standard deviation values for each outcome variable—depression, alexithymia, quality of life, and mental health—in the

pre-test and post-test for the ACT, ISTDP, and control groups.

**Table 2**

*Means and Standard Deviations for Depression, Alexithymia, Quality of Life, and Mental Health Across Groups*

| Variable        | Group   | Pre-Test Mean (SD) | Post-Test Mean (SD) |
|-----------------|---------|--------------------|---------------------|
| Depression      | ACT     | 40.75 (4.71)       | 32.42 (3.29)        |
|                 | ISTDP   | 41.17 (4.02)       | 33.25 (3.65)        |
|                 | Control | 41.54 (4.54)       | 38.83 (3.51)        |
| Alexithymia     | ACT     | 77.58 (6.35)       | 63.92 (5.45)        |
|                 | ISTDP   | 78.50 (6.61)       | 64.67 (5.21)        |
|                 | Control | 78.86 (6.49)       | 77.58 (5.38)        |
| Quality of Life | ACT     | 85.58 (4.44)       | 96.42 (4.31)        |
|                 | ISTDP   | 85.50 (4.61)       | 97.43 (4.19)        |
|                 | Control | 84.75 (4.75)       | 85.67 (4.19)        |
| Mental Health   | ACT     | 84.70 (4.67)       | 96.42 (4.31)        |
|                 | ISTDP   | 83.93 (4.52)       | 97.43 (4.43)        |
|                 | Control | 85.67 (4.25)       | 85.25 (4.19)        |

A multivariate analysis of covariance (MANCOVA) was conducted to examine the effects of the interventions (ACT and ISTDP) on depression, alexithymia, quality of life, and mental health, controlling for baseline values. MANCOVA was appropriate due to

the need to analyze multiple dependent variables simultaneously and account for covariates. The assumptions for MANCOVA, including normality, homogeneity of variances, and regression slopes, were met.

**Table 3**

*MANCOVA Results for Intervention Effects on Psychological Outcomes*

| Variable        | F Statistic | p-Value | Partial $\eta^2$ |
|-----------------|-------------|---------|------------------|
| Depression      | 13.03       | < 0.001 | 0.45             |
| Alexithymia     | 59.56       | < 0.001 | 0.42             |
| Quality of Life | 8.55        | 0.002   | 0.39             |
| Mental Health   | 54.41       | < 0.001 | 0.46             |

MANCOVA results in Table 3 indicated statistically significant improvements in all psychological outcomes (depression, alexithymia, quality of life, and mental health) for both the ACT and ISTDP groups compared to the control group ( $p < 0.05$  for all outcomes). The partial eta-squared values suggest strong effect sizes, with ACT

and ISTDP interventions explaining 39-46% of the variance in outcomes. Following the significant MANCOVA results, univariate ANCOVA analyses were conducted to assess individual outcomes while controlling for baseline scores.

**Table 4**

*Bonferroni Post-Hoc Comparisons for Group and Time Effects*

| Variables       | Comparison        | Mean Difference | p-Value |
|-----------------|-------------------|-----------------|---------|
| Depression      | ACT vs. Control   | -8.33           | < 0.001 |
|                 | ISTDP vs. Control | -8.29           | < 0.001 |
|                 | ACT vs. ISTDP     | -0.83           | > 0.05  |
| Alexithymia     | ACT vs. Control   | -13.66          | < 0.001 |
|                 | ISTDP vs. Control | -13.83          | < 0.001 |
|                 | ACT vs. ISTDP     | -0.75           | > 0.05  |
| Quality of Life | ACT vs. Control   | +10.84          | 0.005   |
|                 | ISTDP vs. Control | +11.93          | 0.003   |
|                 | ACT vs. ISTDP     | -0.84           | > 0.05  |
| Mental Health   | ACT vs. Control   | +11.72          | < 0.001 |
|                 | ISTDP vs. Control | +13.50          | < 0.001 |
|                 | ACT vs. ISTDP     | -1.78           | > 0.05  |

Bonferroni post-hoc results in Table 4 indicate that both ACT and ISTDP groups experienced significant improvements in all outcomes compared to the control group, with no statistically significant differences between ACT and ISTDP ( $p > 0.05$ ). This suggests that both interventions were similarly effective in enhancing the psychological well-being of participants.

## Discussion and Conclusion

This study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Intensive Short-Term Dynamic Psychotherapy (ISTDP) on improving psychological outcomes—namely,

depression, alexithymia, quality of life, and mental health—in women with breast cancer. Findings indicated that both ACT and ISTDP resulted in significant improvements across all outcome variables compared to the control group, with no significant differences between the two interventions, suggesting that both therapies were equally beneficial for this population.

The findings align with prior studies that demonstrate the efficacy of ACT and ISTDP in addressing mental health concerns in various clinical populations. For instance, research on ACT in cancer patients has consistently shown that its focus on psychological flexibility and acceptance of distressing emotions is effective in reducing symptoms of depression and

anxiety (Feros et al., 2013; Hulbert-Williams et al., 2015). Similarly, ISTDP has been effective in populations dealing with chronic illness, with studies reporting reductions in emotional distress through the resolution of unconscious conflicts and emotional processing (Abbass et al., 2014; Town et al., 2017).

However, this study contrasts with some previous research that has suggested slight advantages for ACT over other therapeutic approaches in chronic illness populations, possibly due to ACT's emphasis on coping with ongoing distress (Karekla & Constantinou, 2010). Our findings, indicating similar effectiveness for ACT and ISTDP, may be attributed to the specific psychological demands of breast cancer patients, who face a complex interplay of physical, emotional, and social stressors. These stressors might make both psychological flexibility (promoted by ACT) and emotional processing (a focus of ISTDP) equally beneficial, thus accounting for the lack of significant differences between the two therapies.

The effectiveness of both ACT and ISTDP can be partly explained by their core mechanisms, which address the unique psychological needs of breast cancer patients. ACT, by fostering psychological flexibility, helps patients accept their distress and focus on valued life actions, thus reducing avoidance behaviors and enhancing emotional resilience. This approach is particularly relevant for cancer patients who often experience ongoing emotional and physical discomfort that may not be easily alleviated (Hayes et al., 2006). Psychological flexibility enables patients to adaptively confront cancer-related fears and anxieties, thereby improving their mental health and quality of life.

ISTDP, on the other hand, emphasizes the rapid processing of unconscious emotions, helping patients confront and release suppressed feelings that may contribute to psychological distress. For individuals with breast cancer, unresolved emotions related to their diagnosis, treatment, and potential fears of mortality may exacerbate mental health issues (Abbass et al., 2014). By unlocking these emotions and resolving internal conflicts, ISTDP offers a therapeutic approach that is particularly suitable for patients dealing with the trauma and existential stress associated with cancer. Together, these mechanisms make both ACT and ISTDP well-suited for improving psychological outcomes in breast cancer patients.

### *Clinical Implications*

The results of this study have meaningful clinical implications for integrating mental health services into oncological care. Given the similar efficacy of ACT and ISTDP, practitioners in oncology settings can select either approach based on patient preferences, therapist expertise, and practical considerations. For example, both therapies could be structured into brief formats that fit within the medical treatment schedules of cancer patients. Furthermore, given the potential for remote delivery, especially with ACT, these therapies could be adapted for online or telehealth platforms, facilitating accessibility for patients who may not be able to attend in-person sessions regularly due to treatment demands.

Implementing these interventions could provide significant mental health support within oncology departments, promoting holistic patient care. Both therapies could help reduce the psychological burden on breast cancer patients, potentially improving their adherence to medical treatment, enhancing quality of life, and fostering better overall treatment outcomes. This integration would support a more comprehensive model of cancer care that acknowledges the importance of psychological resilience alongside physical health.

### *Limitations*

Despite its contributions, this study has several limitations that warrant consideration. First, the sample size was relatively small, which may limit the generalizability of the findings. Future studies with larger and more diverse samples are recommended to confirm these results and strengthen external validity. Second, the study relied on self-reported measures, which, while valuable for capturing subjective experiences, may be prone to response biases. Incorporating clinician-administered assessments or objective measures in future research could provide a more balanced evaluation of treatment effects.

Additionally, the study only assessed short-term outcomes following the 8-week intervention period, leaving the long-term effects of ACT and ISTDP on psychological well-being in breast cancer patients unclear. Longitudinal studies are needed to determine whether these therapeutic gains are sustained over time. Another potential limitation is the lack of examination of physiological markers of stress (e.g., cortisol levels),

which could provide insight into the broader health implications of these interventions.

### Future Research Directions

Building on this study, future research could explore several important areas. Longitudinal studies are essential to evaluate the durability of the observed improvements in depression, alexithymia, quality of life, and mental health over time. Additionally, research comparing ACT and ISTDP with other therapeutic modalities, such as mindfulness-based stress reduction or cognitive-behavioral therapy, could help refine intervention strategies by identifying the most effective approaches for supporting mental health in cancer populations.

Exploring the combined use of ACT and ISTDP could also be valuable, as these therapies target different yet complementary mechanisms—psychological flexibility and emotional processing—which together may offer enhanced therapeutic benefits. Finally, assessing physiological markers, such as inflammatory markers or cortisol levels, in future studies could provide evidence on whether these psychological interventions have positive effects on physical health outcomes, potentially contributing to an improved overall prognosis for cancer patients.

### Conclusion

In conclusion, this study demonstrates that both ACT and ISTDP are effective in reducing depression and alexithymia while improving quality of life and mental health among breast cancer patients. The substantial effect sizes observed for both therapies suggest that they are valuable tools for addressing psychological distress in this population. Given the similar efficacy of ACT and ISTDP, both interventions could be integrated into oncology settings to provide accessible and impactful mental health support.

These findings underscore the importance of a holistic approach to cancer care that includes psychological support as an integral component. Integrating ACT or ISTDP into standard care could enhance cancer patients' resilience and overall quality of life, contributing to better treatment adherence and potentially improving medical outcomes. Future research should continue to explore the long-term impacts of these therapies, as well

as their effects on physical health markers, to deepen our understanding of the role psychological interventions play in comprehensive cancer treatment.

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### Declaration of Interest

The authors of this article declared no conflict of interest.

### Ethical Considerations

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

### Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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### Authors' Contributions

All authors equally contributed to this study.

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