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Comparison of the Effectiveness of Compassion-Focused Acceptance and Commitment Therapy and Schema-Integrated Acceptance and Commitment Therapy on Body Image and Sexual Relationship Quality in Women with Breast Cancer in Hamadan

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A B S T R A C T

Purpose: This study aimed to compare the effectiveness of Compassion-Focused Acceptance and Commitment Therapy and Schema-Integrated Acceptance and Commitment Therapy on body image and sexual relationship quality in women with breast cancer in Hamadan.

Methods and Materials: This applied quasi-experimental study employed a pretest–posttest design with a two-month follow-up, two experimental groups, and one active control group. The statistical population consisted of women with breast cancer attending the Health Donors Association of Hamadan Province during 2025–2026. Sixty eligible women were selected through convenience sampling and randomly assigned to three groups of 20 participants. Following attrition, the final sample comprised 50 women, including 17 in the Compassion-Focused Acceptance and Commitment Therapy group, 16 in the Schema-Integrated Acceptance and Commitment Therapy group, and 17 in the control group. The experimental groups received 10 weekly 90-minute group sessions of their respective interventions, while the control group received five weekly 60-minute health and life-skills education sessions. Data were collected using the Objectified Body Consciousness Scale and the Sexual Quality of Life–Female Questionnaire. Data were analyzed in SPSS version 26 using multivariate and univariate analyses of covariance and Bonferroni-adjusted pairwise comparisons.

Findings: Multivariate analysis showed a significant overall effect of treatment condition on the combined dependent variables, Pillai's Trace = 0.592, $F(4, 90) = 9.468$, $p < 0.001$, partial $\eta^2 = 0.296$. Significant group effects were found for body image, $F(2, 45) = 20.691$, $p < 0.001$, partial $\eta^2 = 0.482$, and sexual relationship quality, $F(2, 45) = 16.250$, $p < 0.001$, partial $\eta^2 = 0.419$. Bonferroni comparisons indicated that both interventions were significantly more effective than the control condition on both outcomes. Compassion-Focused Acceptance and Commitment Therapy was also significantly more effective than Schema-Integrated Acceptance and Commitment Therapy for body image, $p = 0.006$, and sexual relationship quality, $p = 0.031$.

Conclusion: Both interventions were effective in improving body image and sexual relationship quality among women with breast cancer, although Compassion-Focused Acceptance and Commitment Therapy demonstrated greater effectiveness and may therefore be particularly useful in psycho-oncological rehabilitation following breast cancer treatment.

Keywords: *Breast Cancer, Body Image, Sexual Relationship Quality, Acceptance and Commitment Therapy, Compassion, Schema Therapy*

1. Introduction

Breast cancer is one of the most consequential health conditions affecting women because its impact extends beyond diagnosis and oncological treatment to multiple dimensions of physical, psychological, interpersonal, and social functioning. Advances in screening, surgery, systemic treatment, radiotherapy, and survivorship care have increased the number of women living for prolonged periods after breast cancer; however, survival is frequently accompanied by persistent treatment-related challenges that require attention within comprehensive cancer care. The biological heterogeneity of breast cancer, the complexity of diagnostic pathways, and the range of available therapeutic strategies highlight the need to view the disease not only as a biomedical condition but also as a long-term psychosocial experience (Pasi et al., 2026). Moreover, treatment decisions may interact with reproductive and hormonal considerations, particularly among women with hereditary susceptibility, illustrating the complexity of long-term health management after breast cancer (Kotsopoulos et al., 2026). From the earliest stages of diagnostic uncertainty, women may experience substantial psychological burden, altered expectations about the future, and disruption of their ordinary personal and family lives (Jafarimanesh et al., 2025). Consequently, psychological adjustment has increasingly been regarded as an essential component of treatment and rehabilitation for women with breast cancer rather than as a secondary concern after completion of medical care (Abdollahi, 2025).

Among the most important psychosocial consequences of breast cancer are changes in the way women perceive and evaluate their bodies. Surgical interventions, especially mastectomy, may alter breast symmetry, body contours, physical sensations, perceptions of femininity, and confidence in appearance. These changes may become particularly salient because the breast is often associated not only with physical appearance but also with femininity, sexuality, intimacy, motherhood, and personal identity. Empirical findings indicate that women with breast cancer may report less favorable body image than healthy women, and these differences can coexist with lower sexual satisfaction (Fathi-Aghdam et al., 2025). Body image after breast cancer is therefore a multidimensional construct involving appearance-related evaluation, self-consciousness, perceived attractiveness, body-related shame, and the meaning attached to bodily changes. Positive body image may serve as a psychological resource during adaptation, while maladaptive body-related concerns may contribute to distress and interfere with social and intimate functioning. Coping resources and social support appear to be particularly important in preserving a more positive body image among younger women confronting breast cancer (Almeida et al., 2025). Likewise, hope and perceived social support have been associated with better quality of life in women with breast cancer, suggesting that adaptive psychological and interpersonal resources can mitigate some of the broader consequences of the illness (Fathnejad Kazemi & Abri-Aghdam, 2025).

The relationship between breast cancer and body image is particularly significant after mastectomy. A woman may become increasingly vigilant toward perceived changes in her appearance, compare her present body with her pre-illness body, anticipate negative evaluation from others, or interpret treatment-related physical changes as evidence of diminished attractiveness. Such processes may intensify body shame and self-criticism and may restrict participation in intimate, social, or personally meaningful activities. Recent evidence has emphasized the importance of body compassion in understanding this process. Body compassion has been identified as a potential mechanism linking demoralization and fear of cancer recurrence with body image concerns in women with breast cancer, indicating that a compassionate and nonjudgmental relationship with the body may protect against the psychological consequences of illness-related bodily change (Soltanpour & Khanjani, 2026). Consistent with this perspective, self-compassion-based therapy has demonstrated beneficial effects on body shame and quality of life among women with cancer (Izadkhast et al., 2026). These findings suggest that interventions focused on changing the individual's relationship with bodily imperfections and illness-related

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suffering may be especially relevant for women who have undergone mastectomy.

Body image also has important implications for sexual and marital functioning. Sexual relationship quality following breast cancer can be affected by surgical changes, treatment side effects, fatigue, discomfort, altered physical sensations, perceived loss of attractiveness, concerns about a partner's response, and reduced confidence during intimacy. In this context, sexual relationship quality represents more than the frequency of sexual activity; it encompasses satisfaction, perceived closeness, confidence, subjective well-being, and the extent to which sexual experiences contribute positively to women's overall quality of life. Comparative research has shown that women with breast cancer may experience difficulties in both body image and sexual satisfaction relative to healthy women (Fathi-Aghdam et al., 2025). Furthermore, mindfulness, self-compassion, and acceptance-related processes have been identified as meaningful predictors of sexual satisfaction in women with breast cancer (Gholipour & Akbarnataej Bisheh, 2025). These findings imply that sexual difficulties following breast cancer cannot be adequately understood only through physiological changes. The ways in which women respond psychologically to thoughts, bodily sensations, self-evaluations, and vulnerability within intimate relationships may be equally important.

Psychological adjustment to cancer involves complex interactions among beliefs, coping strategies, perceived threats, and personal meaning. Models of adaptation suggest that the manner in which women organize and interpret their cancer experience can influence their coping responses and subsequent adjustment (Yazdani Parisa et al., 2026). Women may also seek social and informational support through contemporary online environments, emphasizing the broader importance of interpersonal connection and support-seeking during breast cancer adjustment (Xu et al., 2026). Related evidence indicates that maladaptive repetitive thinking and reduced hope can remain clinically relevant among women undergoing chemotherapy, whereas supportive psychological approaches may strengthen more adaptive coping resources (Khalilzadeh Farsangi et al., 2025). Research outside the immediate oncology context has similarly indicated that acceptance-related processes can meaningfully distinguish psychological functioning among individuals experiencing chronic pain, further supporting the clinical relevance of acceptance when people are confronted with persistent and difficult internal experiences (Salamati et al., 2025). Taken together, these findings support interventions that do not seek merely to eliminate distress but help individuals respond to difficult thoughts, sensations, and self-evaluations in more flexible and adaptive ways.

Acceptance and Commitment Therapy (ACT) is particularly relevant in this regard. ACT is grounded in the psychological flexibility model and aims to increase an individual's capacity to remain in contact with present-moment experiences while choosing behavior that is consistent with personally meaningful values. Rather than attempting to eliminate unwanted internal experiences, ACT emphasizes acceptance, cognitive defusion, present-moment awareness, self-as-context, values clarification, and committed action. Psychological flexibility is increasingly recognized as an important factor in health-related adjustment. Among people in remission from cancer, greater psychological flexibility has been associated with more favorable health outcomes, supporting its relevance during survivorship as well as active treatment (Al-Abbadey et al., 2025). A broader review of ACT has similarly emphasized its potential to enhance psychological well-being through adaptive engagement with difficult internal experiences and value-directed behavior (Anusuya & Gayatridevi, 2025). Within breast cancer populations, ACT has demonstrated beneficial effects on clinically important outcomes. For example, ACT has been found to reduce pain intensity and improve psychological functioning compared with another experiential intervention in women with breast cancer (Alinasab et al., 2025), while a randomized controlled trial demonstrated that ACT improved quality of life among patients with breast cancer partly through reducing helplessness (Song et al., 2026).

ACT may be particularly relevant to body image and sexual relationship quality because both outcomes can be maintained by experiential avoidance, rigid self-judgment, fusion with negative appearance-related thoughts, and withdrawal from valued intimate behavior. A woman who becomes fused with beliefs such as being physically unacceptable or no longer desirable may organize her behavior around avoiding situations that activate shame or vulnerability. ACT attempts to change the functional relationship between the individual and these thoughts rather than debating whether they are literally true. By cultivating acceptance and cognitive defusion, individuals may become more capable of experiencing difficult body-related thoughts without allowing them to dictate behavior. Values-based work may also help women reconnect with valued dimensions of intimacy, partnership, affection, health, and self-care. Evidence from married women with breast cancer

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indicates that ACT can reduce maladaptive appearance schemas, shame, and guilt, providing direct support for its potential usefulness in addressing appearance-related psychological difficulties in this population (Homayounfar et al., 2025).

Nevertheless, psychological flexibility alone may not fully address the intense self-criticism and loss of bodily kindness experienced by some women after breast cancer treatment. For this reason, integrating compassion-focused processes with ACT may strengthen therapeutic effects. Self-compassion involves responding to suffering with kindness, recognizing painful experiences as part of common humanity, and maintaining balanced awareness rather than becoming overwhelmed by negative self-evaluation. Evidence among women with breast cancer suggests that self-compassion plays a meaningful mediating role in the association between psychological flexibility and psychological well-being (Abdelrasheed et al., 2026). A systematic review and meta-analysis has also documented a robust inverse relationship between self-compassion and psychological distress among patients with and survivors of cancer (Bitan et al., 2026). Furthermore, systematic evidence concerning self-compassion-based interventions in cancer populations suggests that these approaches can improve clinically relevant patient outcomes (Çetiner & Turan Kavradım, 2026). Thus, combining the acceptance and values-based processes of ACT with compassion-focused techniques may be especially beneficial when illness-related bodily changes are accompanied by shame, harsh self-evaluation, or difficulty approaching oneself with warmth and understanding.

The clinical value of compassion-focused treatment has also been supported by intervention research among women with breast cancer. Group compassion-focused therapy has been shown to improve quality of life while reducing pain severity and difficulties in psychological regulation (Mehrabi et al., 2026). Similarly, self-compassion-based therapy has produced reductions in body shame alongside improvements in quality of life among women with cancer (Izadkhast et al., 2026). These findings are particularly relevant to post-mastectomy women because body-related distress may involve not only negative cognitions but also an adversarial relationship with the changed body. Compassion-focused ACT may provide a framework through which women can notice painful body-related experiences, reduce struggle with them, respond to themselves with greater care, and pursue valued intimate and relational behaviors despite ongoing vulnerability. Theoretical work also indicates that self-compassion, mindfulness, and adaptive psychological regulation may mediate the effects of deeply rooted maladaptive cognitive structures on distress (Zamani Nezami et al., 2026), further suggesting that compassion may interrupt the pathway from longstanding maladaptive beliefs to current psychological suffering.

A second important therapeutic pathway concerns early maladaptive schemas. Schema theory proposes that enduring patterns of beliefs, memories, bodily sensations, and relational expectations develop around unmet emotional needs and can become activated by major life stressors. Breast cancer may activate schemas concerning defectiveness, abandonment, vulnerability, dependence, failure, or emotional deprivation. When these schemas are triggered by diagnosis, surgery, altered appearance, or fear of rejection, they may shape both body-related self-evaluation and intimate behavior. Recent research has linked early maladaptive schemas with body dysmorphic symptoms in women with breast cancer, with self-esteem functioning as an important mediating mechanism (Tamannaeifar & Esmkhani, 2026). Schema therapy has also demonstrated effectiveness in improving psychological adaptation among breast cancer patients, including gains in resilience and more adaptive psychological functioning (Mirzaei & Pourfaraj Omran, 2025). In addition, comparative evidence suggests that schema therapy can improve sexual function and body image among women with breast cancer (Khodaei Anzab et al., 2025).

Integrating schema therapy with ACT may therefore offer a theoretically complementary approach. Schema-focused work helps individuals identify recurrent maladaptive patterns, unmet emotional needs, coping styles, and schema modes, whereas ACT provides methods for reducing fusion with schema-consistent thoughts and increasing value-directed action even when schemas are activated. Instead of attempting only to modify schema content, an integrated approach may help women recognize when a vulnerable child, critical parent, or avoidant coping mode becomes active and simultaneously develop a more flexible relationship with the associated thoughts and feelings. Empirical support for this combination is emerging. An intervention integrating schema therapy and ACT has been shown to improve subjective well-being and body image concerns in women with breast cancer (Karami Mohajeri et al., 2025). More broadly, schema-based intervention has demonstrated therapeutic value for body image and sexual quality of life among post-mastectomy women, highlighting

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the relevance of maladaptive schemas to both outcomes targeted in the present study (Assarzadeh, 2025).

Despite these encouraging findings, an important comparative question remains unresolved. Both compassion-focused ACT and schema-integrated ACT are theoretically capable of improving adjustment to breast cancer, but they may operate through partially different mechanisms. Compassion-focused ACT directly targets self-criticism, shame, avoidance, and the capacity to approach suffering with warmth while preserving the ACT emphasis on acceptance and valued action. Schema-integrated ACT focuses more strongly on identifying deeply rooted maladaptive patterns, schema modes, and coping responses while using ACT processes to increase flexibility in responding to them. For body image, compassion-focused ACT may be particularly effective when distress is maintained by body shame and harsh self-evaluation, whereas schema-integrated ACT may be particularly valuable when negative body beliefs are embedded within longstanding defectiveness, abandonment, or vulnerability schemas. For sexual relationship quality, compassion-focused ACT may facilitate intimacy by reducing self-judgment and increasing compassionate engagement, while schema-integrated ACT may improve relational functioning by weakening entrenched interpersonal expectations and avoidant coping patterns.

Available evidence supports both therapeutic pathways but provides limited direct evidence regarding their relative efficacy. Compassion-related variables are associated with psychological well-being and reduced distress in cancer populations (Abdelrasheed et al., 2026; Bitan et al., 2026), compassion-focused interventions have produced beneficial clinical outcomes among women with breast cancer (Mehrabi et al., 2026), and body compassion appears directly relevant to body image concerns (Soltanpour & Khanjani, 2026). In parallel, schema-focused and schema-integrated approaches have demonstrated benefits for body image, sexual functioning, resilience, and subjective well-being (Assarzadeh, 2025; Karami Mohajeri et al., 2025; Khodaei Anzab et al., 2025; Mirzaei & Pourfaraj Omran, 2025). At the same time, ACT itself has growing empirical support in breast cancer and broader cancer survivorship contexts (Al-Abbadey et al., 2025; Alinasab et al., 2025; Song et al., 2026). This convergence indicates a need to move beyond asking whether these therapies are effective and instead determine whether one integrated ACT-based approach produces greater improvements in outcomes that are especially salient for post-mastectomy women.

Such comparative evidence is clinically important because psychological interventions in oncology are most useful when their mechanisms correspond to the dominant difficulties experienced by patients. Women coping with mastectomy-related bodily changes and disruptions in sexual relationships may require interventions that address not only distress but also their relationship with the body, internalized self-evaluations, deeply rooted beliefs, intimacy, and value-based living. Developing evidence regarding the relative effects of compassion-focused versus schema-integrated ACT can therefore contribute to more precise selection of psychological interventions in breast cancer rehabilitation and strengthen integrated psychosocial care for women living with the long-term consequences of the disease.

Accordingly, the present study aimed to compare the effectiveness of Compassion-Focused Acceptance and Commitment Therapy and Schema-Integrated Acceptance and Commitment Therapy on body image and sexual relationship quality in women with breast cancer in Hamadan.

2. Methods and Materials

2.1. Study Design and Participants

The present study was applied in purpose and employed a quasi-experimental research design with pretest, posttest, and two-month follow-up assessments involving two experimental groups and one active control group. The first experimental group received Compassion-Focused Acceptance and Commitment Therapy, whereas the second experimental group received Acceptance and Commitment Therapy integrated with schema-based interventions. To control for nonspecific effects associated with participation in group sessions, therapist attention, and interpersonal interaction, participants assigned to the control group attended five weekly 60-minute sessions of health and life-skills education. The content of the control condition was deliberately designed not to include therapeutic techniques derived from acceptance and commitment therapy, compassion-focused interventions, or schema therapy and was not directly targeted at the primary study outcomes. All three groups completed the study measures before the interventions, immediately after completion of the intervention period, and again two months later. This design enabled examination of both the immediate effectiveness of the two therapeutic approaches and the maintenance of

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treatment effects over the two-month follow-up period with respect to body image and sexual relationship quality.

The statistical population consisted of all women with breast cancer who attended the Health Donors Association of Hamadan Province during Iranian calendar year 1404, corresponding to 2025–2026. According to statistics provided by the center at the time of recruitment, approximately 180 women constituted the accessible population. Participants were recruited using convenience sampling after coordination with the Health Donors Association of Hamadan Province. Women who appeared to satisfy the eligibility criteria were informed about the objectives, procedures, duration, potential requirements, voluntary nature of participation, and confidentiality of the study. Those who agreed to participate provided written informed consent before entering the study. An initial sample of 60 eligible women was recruited and randomly allocated in equal numbers to three groups, with 20 participants assigned to Compassion-Focused Acceptance and Commitment Therapy, 20 to Schema-Integrated Acceptance and Commitment Therapy, and 20 to the active control condition. Random allocation was used to improve comparability between the groups and reduce the potential influence of confounding factors. The initial sample size of 20 participants per group was considered appropriate for the quasi-experimental design and was consistent with methodological recommendations suggesting approximately 15 to 30 participants per group in experimental and quasi-experimental psychological studies.

During the intervention and follow-up phases, 10 participants were lost from the study because of excessive absence from treatment sessions, voluntary withdrawal, or failure to complete one or more assessment stages. Consequently, the final analytic sample consisted of 50 women, including 17 participants in the Compassion-Focused Acceptance and Commitment Therapy group, 16 participants in the Schema-Integrated Acceptance and Commitment Therapy group, and 17 participants in the control group. Only data from participants who completed the required study assessments were included in the final statistical analyses. Eligibility criteria included a confirmed diagnosis of breast cancer with at least six months having elapsed since diagnosis, a history of mastectomy, an age between 25 and 55 years, the ability to read and write sufficiently to complete the study questionnaires, willingness to participate and provide informed consent, and being married at the time of the study. Participants were excluded if they voluntarily discontinued participation at any stage, were absent from more than two therapeutic sessions, or failed to complete the study questionnaires.

Following recruitment and random allocation, all participants completed the pretest assessments. The two experimental interventions were then conducted in group format. Participants in each experimental condition attended 10 weekly 90-minute sessions based on the corresponding therapeutic protocol, whereas members of the control group attended five weekly 60-minute health and life-skills education sessions. Immediately after completion of the intervention period, participants in all three groups completed the posttest assessment using the same instruments administered at baseline. A follow-up assessment was subsequently conducted two months after the interventions to determine whether changes in body image and sexual relationship quality were maintained over time. The collected data were coded and entered into IBM SPSS Statistics version 26 for statistical analysis.

2.2. Data Collection Tools

Objectified Body Consciousness Scale. Body image was assessed using the Objectified Body Consciousness Scale developed by McKinley and Hyde in 1996. The instrument was developed within the theoretical framework of objectification theory and assesses the extent to which individuals monitor, evaluate, and form beliefs regarding their physical appearance and body. The scale contains 24 items distributed across three dimensions: body surveillance, body shame, and appearance control beliefs. Body surveillance reflects the degree to which individuals habitually monitor their physical appearance and view their body from the perspective of an external observer. Body shame reflects negative feelings and dissatisfaction that may arise when individuals perceive their bodies as failing to conform to personally or socially valued appearance standards. Appearance control beliefs assess the extent to which individuals believe that physical appearance can be controlled or modified through personal effort. Items are rated on a 7-point Likert-type scale ranging from strongly disagree to strongly agree, with designated items reverse scored before calculation of scale scores. Higher scores on the body surveillance and body shame dimensions indicate greater preoccupation with and more negative evaluation of the body, whereas higher appearance control belief scores indicate a stronger belief in the controllability of physical appearance. McKinley and Hyde reported Cronbach's alpha coefficients of 0.89 for body surveillance, 0.75 for body

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shame, and 0.72 for appearance control beliefs, and factor-analytic findings supported the proposed three-dimensional structure of the instrument. Psychometric investigations of the Persian version have likewise provided evidence of acceptable validity and reliability. For example, evidence of convergent validity has been demonstrated through meaningful relationships between the subscales and theoretically related constructs involving appearance orientation and desire to modify physical appearance. Reported Cronbach's alpha coefficients for the Persian version have been approximately 0.71 for the total scale, with coefficients of approximately 0.78, 0.75, and 0.65 across its respective subscales. Split-half reliability coefficients have ranged from approximately 0.71 to 0.85 for the subscales, and a four-week test-retest reliability coefficient of approximately 0.79 has been reported for the total score. These findings support the suitability of the scale for assessment of body-related attitudes in Iranian women, including women coping with physical changes associated with breast cancer and mastectomy.

Sexual Quality of Life–Female Questionnaire. Sexual relationship quality was assessed using the Sexual Quality of Life–Female Questionnaire developed by Symonds and colleagues in 2005. The SQOL-F is an 18-item self-report instrument designed to evaluate the influence of women's sexual functioning and sexual experiences on their overall quality of life. The questionnaire addresses several interrelated aspects of sexual well-being, including feelings regarding one's sexual life, satisfaction with sexual relationships, perceptions of sexual attractiveness, and the emotional consequences associated with sexual experiences and intimate relationships. Responses are provided using a 6-point Likert-type response format ranging from strongly agree to strongly disagree. Several items require reverse scoring, after which item scores are combined to obtain the overall score. Higher scores represent more favorable sexual quality of life and greater satisfaction with one's sexual relationship and sexual experiences. In the original validation study, Symonds and colleagues reported excellent internal consistency, with a Cronbach's alpha coefficient of approximately 0.96, and provided evidence supporting the construct and convergent validity of the measure. The psychometric properties of the Persian version have also been evaluated in Iranian samples. Iranian studies have reported satisfactory face and content validity and internal consistency coefficients exceeding 0.89, supporting the applicability of the instrument to Iranian women. Given its favorable psychometric characteristics and its focus on the subjective quality of women's sexual experiences and intimate relationships, the total SQOL-F score was used as the indicator of sexual relationship quality in the present study.

2.3. Interventions

Compassion-Focused Acceptance and Commitment Therapy. The Compassion-Focused Acceptance and Commitment Therapy intervention was administered in 10 weekly 90-minute group sessions based on the protocol described by Tirch, Schoendorff, and Silberstein and its Persian adaptation. The protocol combined the principal processes of Acceptance and Commitment Therapy with compassion-focused exercises and was adapted to the experiences and psychosocial concerns of women with breast cancer. The opening session focused on establishing therapeutic rapport, introducing group members and group rules, emphasizing confidentiality and participation expectations, discussing the impact of breast cancer on participants' lives, introducing self-compassion in accessible terms, and initiating values clarification through an exercise involving the imagined fiftieth wedding anniversary. Participants were asked to notice episodes of self-criticism during the following week and consider how they would respond to a close friend facing the same circumstances. Subsequent work introduced mindfulness through mindful eating, discussion of Gilbert's three emotion-regulation systems, and creative hopelessness exercises illustrating the limitations of thought suppression. Acceptance was then developed through experiential metaphors such as the guesthouse and the flowers-and-thorns metaphor, while compassionate imagery, including the safe-place exercise, was introduced to cultivate a kinder response to suffering. Later sessions deepened present-moment awareness through breathing exercises and the clouds-passing metaphor and incorporated a forgiveness-letter exercise to facilitate a less judgmental relationship with painful experiences. Acceptance was further practiced through the ball-in-the-pool metaphor, and participants were encouraged to develop specific and realistic plans for strengthening intimacy and constructive interactions with their spouses while engaging in intentional acts of kindness and compassion. The intervention subsequently addressed cognitive fusion and conceptualized self through exercises such as the cars-on-the-street and chessboard metaphors, body-scan practice, and rapid repetition of difficult thoughts to promote cognitive defusion. Values clarification and value-based

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choice were reinforced alongside the monsters-on-the-boat metaphor and exercises involving singing or vocalizing distressing thoughts. The passengers-on-the-bus metaphor was then used to integrate acceptance, cognitive defusion, and values-guided behavior, while self-soothing and compassionate self-touch were introduced as practical self-compassion exercises. The final stages of treatment emphasized self-compassion practice, SMART goal setting, committed action, and systematic review of the degree to which daily behavior was consistent with personally chosen values. In the final session, participants reviewed and consolidated mindfulness, acceptance, defusion, self-as-context, compassion, values, and committed-action skills; practiced additional cognitive defusion; developed individualized plans for continuing the skills after treatment; discussed their experiences of the intervention; and received support for maintaining value-consistent and compassionate behavior beyond the formal treatment period.

Schema-Integrated Acceptance and Commitment Therapy. The Schema-Integrated Acceptance and Commitment Therapy intervention was delivered in 10 weekly 90-minute group sessions based on the protocol of Gökçeçiçek and colleagues and was adapted to the psychological and interpersonal experiences of women with breast cancer. The intervention integrated the psychological flexibility processes of Acceptance and Commitment Therapy with concepts from schema therapy, particularly unmet emotional needs, maladaptive schemas, schema coping styles, schema modes, the punitive or critical parent mode, and the healthy adult mode. The initial session established group rules and therapeutic rapport, encouraged discussion of the impact of breast cancer on participants' lives, clarified personal expectations for treatment, introduced values through the imagined fiftieth wedding anniversary exercise, initiated mindfulness practice, and trained participants to identify situations that activated maladaptive schemas. Participants were asked to practice mindful breathing daily and record situations associated with intense feelings such as shame, worry, hopelessness, or self-criticism, together with the accompanying thoughts, emotions, and behaviors. The next phase introduced acceptance through the guesthouse metaphor and explained core emotional needs, including secure attachment, autonomy, freedom to express needs and feelings, spontaneity, and realistic limits. Participants practiced labeling unpleasant internal experiences and observing them without avoidance or judgment while identifying emotional needs that might have been activated. Cognitive defusion was subsequently taught to help participants observe distressing thoughts related to illness, changes in physical appearance, intimate relationships, and the future without automatically treating such thoughts as literal truths. Active schemas were identified and linked to recurrent emotional and behavioral patterns. Values were then explored through the compass metaphor, and schema coping styles were introduced to help participants recognize how surrender, avoidance, or overcompensation could interfere with value-consistent action. The intervention later introduced the observing-self perspective through the chessboard metaphor and explained schema modes such as the vulnerable child, angry child, critical parent, and avoidant protector. Participants practiced noticing the schema mode active during emotionally difficult situations and considering how they could respond from an observing perspective in a manner more consistent with their values. Cognitive defusion was reinforced through the leaves-on-a-stream exercise, while particular attention was given to identifying self-critical messages generated by the critical parent mode and differentiating these messages from more adaptive and realistic self-evaluations. Acceptance was further strengthened through the tug-of-war-with-a-monster metaphor, and the healthy adult mode was introduced as a compassionate, realistic, and adaptive position from which emotional needs could be recognized and addressed without surrendering to maladaptive schemas. The mind-radio metaphor was subsequently used to help participants distance themselves from repetitive self-critical messages, and participants practiced formulating healthier adult responses to such messages. In the final phase, committed action was developed through the garden-of-life metaphor, and each participant formulated an individualized values-based action plan involving small, achievable behaviors consistent with personally meaningful life directions. The final session reviewed the major therapeutic metaphors and skills, encouraged participants to write a letter from their healthy adult mode to their future selves, developed plans for maintaining therapeutic gains in everyday life, reinforced continued mindfulness and values-based practice, and provided an opportunity for feedback and closure.

Health and Life-Skills Education for the Control Group. Participants assigned to the control condition attended five weekly 60-minute group sessions of general health and life-skills education. This active comparison condition was included to control for the effects of receiving attention, attending structured group meetings, and interacting with a facilitator and other participants. The educational content

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was intentionally separated from the therapeutic mechanisms targeted in the two experimental interventions. The first session introduced group members, established basic group expectations, and provided general education concerning physical, psychological, and social dimensions of health and their relevance to quality of life. The second session addressed general principles of healthy nutrition, adequate fluid intake, appropriate sleep, and levels of physical activity compatible with the medical circumstances of women with breast cancer, while participants discussed practical barriers to maintaining healthy routines. The third session focused on general communication skills with family members, friends, and healthcare professionals, including the importance of communicating needs, seeking assistance when required, and maintaining sources of social support. The fourth session addressed common sources of everyday stress and their general effects on physical and psychological well-being and facilitated discussion of ordinary, nontherapeutic strategies that participants already used to manage daily pressures. The final session reviewed the health information covered during the program, emphasized maintenance of healthy lifestyle behaviors, self-care, adherence to medical follow-up, and constructive communication with family members and the healthcare team, and provided an opportunity for participants to offer feedback. No specific acceptance and commitment, compassion-focused, or schema-therapy techniques were taught as part of the control program.

2.4. Data Analysis

Following completion of data collection, responses were coded, screened, and entered into IBM SPSS Statistics version 26. Descriptive statistics were initially calculated to summarize participants' demographic characteristics and study variables. Frequencies and percentages were used for categorical demographic variables, whereas means and standard deviations were calculated for continuous variables and for body image and sexual relationship quality scores at the pretest, posttest, and two-month follow-up assessments. Prior to hypothesis testing, the assumptions required for parametric repeated-measures analysis were evaluated. The normality of score distributions was examined using the Shapiro–Wilk test and inspection of the distributional characteristics of the data. Homogeneity of error variances across the three groups was assessed using Levene's test, and the equality of variance–covariance matrices was examined using Box's M test where applicable. Because each dependent variable was measured at three assessment occasions, the sphericity assumption was evaluated using Mauchly's test. When the assumption of sphericity was violated, an appropriate correction such as the Greenhouse–Geisser adjustment was applied to the degrees of freedom. The effects of intervention group, assessment time, and the interaction between group and time were examined using mixed repeated-measures analysis of variance, with assessment time comprising pretest, posttest, and two-month follow-up as the within-subject factor and treatment condition comprising Compassion-Focused Acceptance and Commitment Therapy, Schema-Integrated Acceptance and Commitment Therapy, and the active control condition as the between-subject factor. Significant overall effects and interaction effects were followed by adjusted pairwise comparisons, using the Bonferroni procedure where appropriate, to determine the specific assessment occasions and treatment groups between which significant differences occurred. Effect sizes were reported to indicate the magnitude of intervention effects in addition to statistical significance, and the significance level for inferential analyses was set at 0.05.

3. Findings and Results

The final sample consisted of 50 women with breast cancer, including 17 participants in the Compassion-Focused Acceptance and Commitment Therapy group, 16 participants in the Schema-Integrated Acceptance and Commitment Therapy group, and 17 participants in the control group. The mean age of participants was 45.70 ± 4.59 years in the Compassion-Focused Acceptance and Commitment Therapy group, 45.75 ± 5.18 years in the Schema-Integrated Acceptance and Commitment Therapy group, and 44.76 ± 4.58 years in the control group. Regarding educational level, 3, 9, 4, and 1 participants in the Compassion-Focused Acceptance and Commitment Therapy group had lower-secondary, high-school diploma, associate degree, and bachelor's degree education, respectively. The corresponding frequencies were 4, 8, 2, and 2 in the Schema-Integrated Acceptance and Commitment Therapy group and 5, 7, 2, and 3 in the control group. Overall, 12 participants had lower-secondary education, 24 had a high-school diploma, 8 had an associate degree, and 6 had a bachelor's degree. Regarding occupational status, 11 participants in the Compassion-Focused Acceptance and Commitment Therapy group were homemakers, 2 were employees, and 4 reported other

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occupations. In the Schema-Integrated Acceptance and Commitment Therapy group, 9 were homemakers, 2 were employees, and 5 had other occupations, whereas the corresponding frequencies in the control group were 13, 3, and 1, respectively. Thus, homemakers constituted the largest occupational category in all three groups.

Table 1

Descriptive statistics for body image and sexual relationship quality by group and assessment stage

Variable	Assessment	Compassion-Focused ACT, M ± SD	Schema-Integrated ACT, M ± SD	Control, M ± SD
Body image	Pretest	57.47 ± 5.69	56.68 ± 6.05	54.29 ± 5.13
Body image	Posttest	41.23 ± 4.02	47.78 ± 5.95	53.55 ± 6.51
Sexual relationship quality	Pretest	54.58 ± 5.81	56.37 ± 6.37	55.76 ± 6.07
Sexual relationship quality	Posttest	65.11 ± 5.25	60.37 ± 4.88	55.11 ± 4.07

As shown in Table 1, the mean body image score decreased from 57.47 ± 5.69 at pretest to 41.23 ± 4.02 at posttest in the Compassion-Focused Acceptance and Commitment Therapy group and from 56.68 ± 6.05 to 47.78 ± 5.95 in the Schema-Integrated Acceptance and Commitment Therapy group. In contrast, the control group's mean score changed only slightly from 54.29 ± 5.13 to 53.55 ± 6.51. Given the scoring direction of the body image measure, the larger reductions observed in the two intervention groups indicated improvement in participants' body-related evaluations, with the greatest change observed in the Compassion-Focused Acceptance and Commitment Therapy group. A similar intervention-related pattern emerged for sexual relationship quality. The mean score increased from 54.58 ± 5.81 to 65.11 ± 5.25 in the Compassion-Focused Acceptance and Commitment Therapy group and from 56.37 ± 6.37 to 60.37 ± 4.88 in the Schema-Integrated Acceptance and Commitment Therapy group, whereas the control group showed virtually no improvement, changing from 55.76 ± 6.07 at pretest to 55.11 ± 4.07 at posttest. These descriptive findings suggested that both interventions were associated with favorable changes, although the magnitude of change was greater for Compassion-Focused Acceptance and Commitment Therapy.

Before conducting the inferential analyses, the assumptions underlying parametric analysis were examined. Shapiro–Wilk tests were nonsignificant across the study groups for both body image and sexual relationship quality at the pretest and posttest assessments, indicating no statistically significant departure from normality. Levene's tests were also nonsignificant for body image, $F(2, 47) = 1.069$, $p = 0.351$, and sexual relationship quality, $F(2, 47) = 0.530$, $p = 0.592$, supporting the assumption of homogeneity of variances. Box's M test was nonsignificant, Box's $M = 5.997$, $p = 0.466$, indicating homogeneity of the variance–covariance matrices. Furthermore, the interactions between group membership and pretest scores were nonsignificant for body image, $F = 1.667$, $p = 0.198$, and sexual relationship quality, $F = 1.916$, $p = 0.084$, supporting the homogeneity of regression slopes assumption. Accordingly, the assumptions required for covariance analysis were considered adequately satisfied.

Table 2

Analysis of covariance for the effects of treatment group on body image and sexual relationship quality after controlling for pretest scores

Source	Dependent variable	SS	df	MS	F	p	Partial η^2
Group	Body image	1283.217	2	641.609	20.691	<0.001	0.482
Group	Sexual relationship quality	751.350	2	375.675	16.250	<0.001	0.419
Error	Body image	1377.442	45	30.610	—	—	—
Error	Sexual relationship quality	1040.328	45	23.118	—	—	—

The multivariate analysis of covariance initially demonstrated a significant overall effect of treatment condition on the combined dependent variables after controlling for pretest scores. Pillai's Trace was 0.592, $F(4, 90) = 9.468$, $p < 0.001$, partial $\eta^2 = 0.296$, while Wilks' Lambda was 0.408, $F(4, 88) = 12.435$, $p < 0.001$, partial $\eta^2 = 0.361$. The subsequent univariate analyses presented in Table 2 showed a statistically significant group effect on body image, $F(2, 45) = 20.691$, $p < 0.001$, partial $\eta^2 = 0.482$, indicating that approximately 48.2% of the adjusted variance

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in posttest body image scores was associated with group membership. A significant group effect was likewise observed for sexual relationship quality, $F(2, 45) = 16.250$, $p < 0.001$, partial $\eta^2 = 0.419$, indicating that approximately 41.9% of the adjusted variance in posttest sexual relationship quality scores was associated with treatment condition. These findings demonstrated that, after controlling for baseline scores, statistically significant differences existed among the Compassion-Focused Acceptance and Commitment Therapy, Schema-Integrated Acceptance and Commitment Therapy, and control groups on both study outcomes.

Table 3

Bonferroni-adjusted pairwise comparisons of the treatment groups

Dependent variable	Group comparison	Mean difference	SE	p
Body image	Compassion-Focused ACT − Schema-Integrated ACT	-6.360	1.944	0.006
Body image	Compassion-Focused ACT − Control	-12.660	1.955	<0.001
Body image	Schema-Integrated ACT − Control	-6.300	1.960	0.007
Sexual relationship quality	Compassion-Focused ACT − Schema-Integrated ACT	4.514	1.689	0.031
Sexual relationship quality	Compassion-Focused ACT − Control	9.984	1.699	<0.001
Sexual relationship quality	Schema-Integrated ACT − Control	5.170	1.704	0.012

As shown in Table 3, Bonferroni-adjusted comparisons indicated that both interventions produced significantly better posttest outcomes than the control condition. For body image, the adjusted mean score in the Compassion-Focused Acceptance and Commitment Therapy group was significantly lower than that in the control group, with a mean difference of -12.660, $p < 0.001$, while the Schema-Integrated Acceptance and Commitment Therapy group also had a significantly lower score than the control group, with a mean difference of -6.300, $p = 0.007$. A significant difference was also found between the two intervention groups, with the Compassion-Focused Acceptance and Commitment Therapy group obtaining a lower adjusted body image score than the Schema-Integrated Acceptance and Commitment Therapy group, mean difference = -6.360, $p = 0.006$. Therefore, Compassion-Focused Acceptance and Commitment Therapy produced a significantly greater improvement in body image. Regarding sexual relationship quality, the Compassion-Focused Acceptance and Commitment Therapy group had a significantly higher adjusted posttest score than the control group, mean difference = 9.984, $p < 0.001$, and the Schema-Integrated Acceptance and Commitment Therapy group also scored significantly higher than the control group, mean difference = 5.170, $p = 0.012$. Furthermore, the Compassion-Focused Acceptance and Commitment Therapy group demonstrated significantly higher sexual relationship quality than the Schema-Integrated Acceptance and Commitment Therapy group, mean difference = 4.514, $p = 0.031$. Taken together, the pairwise comparisons indicated that both therapeutic approaches were effective in improving body image and sexual relationship quality among women with breast cancer, but Compassion-Focused Acceptance and Commitment Therapy demonstrated significantly greater effects than Schema-Integrated Acceptance and Commitment Therapy on both outcomes.

4. Discussion and Conclusion

The present study compared the effectiveness of Compassion-Focused Acceptance and Commitment Therapy and Schema-Integrated Acceptance and Commitment Therapy on body image and sexual relationship quality in women with breast cancer. The findings demonstrated that both interventions produced statistically significant improvements in comparison with the control group. After controlling for pretest scores, a significant group effect was observed for body image, $F(2, 45) = 20.691$, $p < 0.001$, partial $\eta^2 = 0.482$, and for sexual relationship quality, $F(2, 45) = 16.250$, $p < 0.001$, partial $\eta^2 = 0.419$. Bonferroni pairwise comparisons further showed that both experimental groups differed significantly from the control group on both dependent variables. Importantly, Compassion-Focused Acceptance and Commitment Therapy was significantly more effective than Schema-Integrated Acceptance and Commitment Therapy in improving both body image and sexual relationship quality. These findings suggest that although both approaches constitute potentially useful psychological interventions for women coping with breast cancer and mastectomy-related changes, incorporating compassion-focused processes into ACT may provide additional therapeutic benefits for body-related and intimate-relational outcomes.

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The first major finding indicated that both Compassion-Focused Acceptance and Commitment Therapy and Schema-Integrated Acceptance and Commitment Therapy improved body image compared with the control condition. This finding is consistent with previous studies demonstrating the usefulness of acceptance-based, compassion-oriented, and schema-focused interventions for appearance-related concerns in women with breast cancer. Homayounfar and colleagues reported that Acceptance and Commitment Therapy was effective in reducing maladaptive appearance schemas, shame, and guilt among married women with breast cancer, supporting the proposition that psychological flexibility can modify dysfunctional responses to appearance-related changes (Homayounfar et al., 2025). Similarly, Karami Mohajeri and colleagues found that integrating schema therapy with Acceptance and Commitment Therapy improved body image concerns and subjective well-being among women with breast cancer (Karami Mohajeri et al., 2025). The present findings are also compatible with evidence that schema therapy can improve body image in women with breast cancer (Khodaei Anzab et al., 2025) and that schema-oriented interventions can enhance body image among post-mastectomy women (Assarzadeh, 2025).

The effectiveness of ACT-based interventions for body image may be explained by their influence on psychological flexibility. Breast cancer, particularly when accompanied by mastectomy, can intensify attention to physical changes, fears of social evaluation, perceived loss of attractiveness, and rigid comparison between the current and pre-illness body. Women may become cognitively fused with thoughts such as being unattractive, incomplete, or less feminine and may organize their behavior around avoiding situations that evoke body-related discomfort. ACT does not require elimination of these thoughts; instead, it helps patients observe thoughts as transient mental events and remain engaged in personally meaningful activities despite the presence of difficult internal experiences. The relevance of psychological flexibility to cancer adjustment is supported by evidence showing that greater psychological flexibility is associated with more favorable health-related outcomes among cancer survivors (Al-Abbadey et al., 2025). Moreover, ACT has demonstrated beneficial effects in women with breast cancer across a range of psychological and health-related outcomes (Alinasab et al., 2025; Song et al., 2026). Thus, the reductions in maladaptive body image scores observed in both experimental groups may partly reflect greater acceptance of bodily changes, reduced cognitive fusion with negative appearance-related thoughts, and increased willingness to engage in meaningful life activities despite discomfort.

The findings concerning body image can also be interpreted through the role of maladaptive schemas. Breast cancer and mastectomy may activate longstanding schemas involving defectiveness, vulnerability, abandonment, dependence, or emotional deprivation. When these schemas are activated, bodily changes may be interpreted not merely as consequences of medical treatment but as confirmation of deeper negative beliefs about the self. Tamannaeifar and Esmkhani demonstrated that early maladaptive schemas were associated with body dysmorphic symptoms among women with breast cancer and that self-esteem played an important mediating role in this relationship (Tamannaeifar & Esmkhani, 2026). Schema therapy has likewise shown beneficial effects on psychological adaptation in breast cancer populations (Mirzaei & Pourfaraj Omran, 2025). Integrating schema concepts with ACT may therefore help women recognize the activation of maladaptive schemas and coping modes while simultaneously developing cognitive defusion and acceptance. By identifying critical, vulnerable, or avoidant schema modes and responding from a more adaptive healthy-adult position, patients may reduce the influence of entrenched negative beliefs on current perceptions of their bodies.

Although both interventions improved body image, Compassion-Focused Acceptance and Commitment Therapy produced a significantly greater effect than Schema-Integrated Acceptance and Commitment Therapy. This difference may be explained by the central role of shame, self-criticism, and loss of body-related kindness following breast cancer surgery. Mastectomy can alter a woman's relationship not only with her appearance but with her body as an object of care, identity, sexuality, and personal meaning. Compassion-focused interventions explicitly target harsh self-judgment and promote a caring, understanding, and nonpunitive response to suffering. Soltanpour and Khanjani identified body compassion as an important mediator linking demoralization and fear of cancer recurrence with body image concerns among women with breast cancer (Soltanpour & Khanjani, 2026). Izadkhast and colleagues also showed that self-compassion-based therapy reduced body shame and improved quality of life in women with cancer (Izadkhast et al., 2026). These findings closely correspond to the stronger body image improvement observed in the compassion-focused ACT group.

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The superiority of the compassion-focused intervention may further reflect the mutually reinforcing effects of self-compassion and psychological flexibility. Abdelrasheed and colleagues found that self-compassion mediated the relationship between psychological flexibility and psychological well-being in women with breast cancer (Abdelrasheed et al., 2026). This suggests that increasing flexibility may be especially beneficial when accompanied by a compassionate way of relating to oneself. A systematic review and meta-analysis likewise demonstrated an inverse association between self-compassion and psychological distress among cancer patients and survivors (Bitan et al., 2026), while systematic evidence indicates that self-compassion-based interventions can produce favorable outcomes across cancer populations (Çetiner & Turan Kavradım, 2026). Group compassion-focused therapy has also been shown to improve quality of life among women with breast cancer (Mehrabi et al., 2026). Accordingly, combining ACT with compassion-focused exercises may help women not only accept unwanted body-related thoughts but also respond to themselves with greater warmth when such thoughts arise, thereby reducing shame and facilitating a more adaptive relationship with the changed body.

The second major finding showed that both interventions significantly improved sexual relationship quality relative to the control group. This result is consistent with the broader literature indicating that sexual functioning and sexual well-being among women with breast cancer are strongly connected to psychological processes. Women with breast cancer have been shown to differ from healthy women in both sexual satisfaction and body image (Fathi-Aghdam et al., 2025). Because sexual relationship quality involves feelings of desirability, intimacy, confidence, satisfaction, and emotional closeness, treatment-related bodily changes can interfere with sexual well-being even when medical recovery is otherwise progressing adequately. The present results are consistent with previous findings showing that schema therapy can improve sexual functioning in women with breast cancer (Khodaei Anzab et al., 2025) and that schema-oriented psychological treatment can improve sexual quality of life among post-mastectomy women (Assarzadeh, 2025).

ACT may improve sexual relationship quality by reducing avoidance of intimacy and increasing value-consistent interpersonal behavior. Following breast cancer treatment, some women may avoid physical closeness because intimate situations activate shame, fear of rejection, self-consciousness, or painful comparisons with their previous body. Experiential avoidance can temporarily reduce discomfort but may progressively weaken marital intimacy and reinforce negative beliefs about attractiveness and sexuality. Through acceptance and cognitive defusion, ACT can help patients remain present with difficult thoughts and feelings without allowing those experiences to determine their behavior. Values clarification can additionally redirect attention toward valued dimensions of marriage, closeness, affection, and mutual connection. The broader evidence supporting ACT in breast cancer is compatible with this explanation. Song and colleagues found that ACT improved quality of life among breast cancer patients by reducing helplessness (Song et al., 2026), while Alinasab and colleagues demonstrated the effectiveness of ACT for clinically relevant psychological and physical outcomes in women with breast cancer (Alinasab et al., 2025). These findings indicate that ACT may reduce rigid avoidance patterns and support active engagement with meaningful areas of life.

The association between acceptance-related processes and sexual well-being is further supported by findings demonstrating that mindfulness, self-compassion, and acceptance and action predict sexual satisfaction in women with breast cancer (Gholipour & Akbarnataej Bisheh, 2025). Mindfulness can help women remain attentive to present-moment interpersonal and bodily experiences rather than becoming dominated by evaluative thoughts about appearance. Acceptance may reduce attempts to suppress or escape uncomfortable bodily sensations, while cognitive defusion may weaken the behavioral impact of thoughts concerning desirability or perceived inadequacy. In addition, changes in psychological adjustment may facilitate greater openness in intimate relationships. Research suggests that psychological adaptation to cancer depends substantially on the ways patients interpret their illness and deploy coping strategies (Yazdani Parisa et al., 2026). Supportive interpersonal contexts also appear relevant, as social support has been associated with both positive body image and broader quality-of-life outcomes among women with breast cancer (Almeida et al., 2025; Fathnejad Kazemi & Abri-Aghdam, 2025).

Schema-Integrated Acceptance and Commitment Therapy may have improved sexual relationship quality because difficulties with intimacy can activate longstanding relational schemas. Concerns that a spouse may lose interest, withdraw emotionally, or judge the woman's changed appearance may activate abandonment, defectiveness, emotional deprivation, or vulnerability schemas. These

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schemas may then lead to avoidant or overcompensatory coping, reducing communication and emotional closeness. Schema-focused work helps participants identify these patterns, understand their emotional origins, and recognize schema modes that shape responses during relational situations. Integrating this process with ACT can help women notice schema-related thoughts without acting automatically on them. The effectiveness observed in the schema-integrated group is therefore consistent with prior evidence for the usefulness of schema-based treatment in improving adjustment among patients with breast cancer (Mirzaei & Pourfaraj Omran, 2025) and with findings supporting integrated ACT and schema therapy for body-related and psychological outcomes (Karami Mohajeri et al., 2025).

Nevertheless, Compassion-Focused Acceptance and Commitment Therapy again produced a significantly greater improvement in sexual relationship quality than Schema-Integrated Acceptance and Commitment Therapy. One explanation is that intimate relationships after mastectomy often involve heightened vulnerability, shame, self-consciousness, and fear of negative evaluation. Compassion may directly reduce the defensive self-criticism that makes intimacy threatening. When individuals learn to relate to bodily changes with kindness rather than contempt or shame, they may become more willing to receive affection, communicate needs, and participate in intimate interactions. The established relationships among self-compassion, psychological flexibility, and psychological well-being in women with breast cancer support this interpretation (Abdelrasheed et al., 2026). Similarly, the relationship between self-compassion and lower cancer-related psychological distress documented in meta-analytic research suggests that self-compassion may create a psychological context in which intimate vulnerability becomes more tolerable (Bitan et al., 2026). Thus, compassion-focused ACT may have provided an additional mechanism for reducing the shame and self-protective withdrawal that can negatively affect sexual relationships.

The overall pattern of findings also highlights the importance of addressing psychological adaptation as part of comprehensive breast cancer care. Breast cancer is associated with complex diagnostic, treatment, and survivorship demands (Pasi et al., 2026), and women's psychological experiences may begin even before diagnostic confirmation (Jafarimanesh et al., 2025). Psychological adjustment should therefore be understood as a central component of supportive oncology care (Abdollahi, 2025). The present results add to this literature by demonstrating that two theoretically distinct ACT-based interventions can improve outcomes that are particularly salient among post-mastectomy women. At the same time, the greater effectiveness of the compassion-focused approach suggests that the specific therapeutic processes incorporated into ACT may matter. Self-compassion and body compassion appear especially relevant when treatment consequences involve appearance, shame, intimacy, and perceived femininity, whereas schema work may be particularly important when cancer activates deeply rooted maladaptive beliefs and relational patterns.

The present study had several limitations that should be considered when interpreting the findings. Participants were recruited through convenience sampling from a single health-related center in Hamadan, which limits the generalizability of the results to women with breast cancer in other geographic, cultural, socioeconomic, or medical contexts. The final sample was relatively small, and attrition reduced the number of participants available for analysis. The study relied primarily on self-report instruments, making the findings potentially susceptible to response bias and social desirability, particularly for a sensitive outcome such as sexual relationship quality. Moreover, the follow-up period was limited to two months, so the longer-term stability of treatment gains remains uncertain. Differences in disease stage, type of adjuvant treatment, time since surgery, menopausal status, relationship duration, partner characteristics, and medical side effects were not examined as potential moderators of therapeutic response.

Future research should replicate the present study using larger and more heterogeneous samples recruited from multiple oncology centers and regions. Randomized clinical trials with longer follow-up periods would provide stronger evidence concerning the durability and comparative effectiveness of the interventions. Future studies could examine potential mediators such as psychological flexibility, self-compassion, body compassion, experiential avoidance, schema activation, body shame, and values-based action to clarify why one intervention may outperform another. It would also be useful to investigate whether clinical characteristics such as type of surgery, treatment phase, age, menopausal status, or severity of body image disturbance influence response to each intervention. Dyadic studies involving spouses or partners may further clarify how psychological treatment affects communication, intimacy, and sexual relationship quality within the couple rather than only at the individual level.

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From a practical perspective, psychological services for women with breast cancer should include systematic attention to body image and sexual relationship quality rather than focusing exclusively on general distress. Oncology centers, breast cancer support organizations, and psycho-oncology clinics could incorporate structured group interventions based on acceptance, compassion, and values-guided action into post-mastectomy rehabilitation programs. Given the stronger effects observed for Compassion-Focused Acceptance and Commitment Therapy, clinicians working with women who experience pronounced body shame, self-criticism, or intimacy-related avoidance may consider prioritizing compassion-focused ACT techniques. Schema-integrated ACT may remain particularly useful when longstanding maladaptive beliefs and relational patterns are prominent. Training psychologists, counselors, and oncology professionals to sensitively assess body-related and sexual concerns and refer patients to appropriate psychological interventions could strengthen comprehensive survivorship care.

Authors' Contributions

All authors significantly contributed to this study.

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.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent. Prior to implementation, the required institutional permissions were obtained, and the study received ethical approval from the Research Ethics Committee of Islamic Azad University, Borujerd Branch, under ethics code IR.IAU.B.REC.1404.094.

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