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From Fear to Meaning: Understanding Radiotherapy Within the Breast Cancer Treatment Journey—A Qualitative Study

Elif Oral

eoral@bingol.edu.tr

Bingöl Üniversitesi

Serpil Yılmaz

Hitit Üniversitesi

Research Article

Keywords: breast cancer, radiotherapy, supportive care, psychosocial adaptation, qualitative research, oncology nursing

Posted Date: September 3rd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10353674/v1

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Additional Declarations: No competing interests reported.

Abstract

Objectives

This study aimed to explore the psychosocial experiences of women with breast cancer during radiotherapy and to develop a deeper conceptual understanding of how radiotherapy is experienced within the broader cancer treatment journey.

Methods

A qualitative descriptive design was employed. Semi-structured interviews were conducted with 27 women receiving radiotherapy for breast cancer at a university hospital in Türkiye. Data were analyzed using inductive thematic analysis following the approach proposed by Braun and Clarke.

Results

Five interrelated themes were identified: (1) illness perception and the diagnostic process, (2) psychosocial impact of pre-radiotherapy treatments, (3) experiences during the radiotherapy process, (4) psychosocial transformation during radiotherapy, and (5) coping mechanisms and social support systems. Rather than representing isolated reactions to individual treatment stages, participants' narratives revealed a **broader biopsychosocial transformation process** extending from diagnosis through subsequent treatments. Within this broader trajectory, radiotherapy emerged as a **distinct psychosocial transformation process** characterized by progressive movement from fear and uncertainty toward adaptation, meaning-making, and reintegration. These findings provide a **process-oriented conceptualization** of radiotherapy that extends beyond existing symptom- or stage-focused descriptions. Social support, spiritual coping, trust in healthcare professionals, and cognitive reappraisal facilitated this transformation, while psychological strengthening emerged in some participants.

Conclusions

This study suggests that radiotherapy should be understood not merely as a biomedical intervention but as a distinct psychosocial transformation process embedded within the broader cancer treatment journey. By conceptualizing radiotherapy within this wider biopsychosocial trajectory, the findings offer a **novel process-oriented perspective** for understanding patients' psychosocial experiences and adaptation during treatment.

Implications for Nursing Practice

The proposed process-oriented perspective highlights the importance of continuous psychosocial assessment throughout the cancer treatment trajectory rather than focusing exclusively on treatment-related symptoms. Oncology nurses can facilitate adaptation by providing individualized information, therapeutic communication, emotional support, and opportunities for meaning-making across different stages of treatment, thereby promoting psychosocial well-being during radiotherapy.

Clinical Trial Registration

Clinical trial number: Not applicable.

HIGHLIGHTS

1. Radiotherapy was conceptualized as a distinct psychosocial transformation process within the broader breast cancer treatment journey.
2. Psychosocial adaptation evolved from fear and uncertainty to meaning-making, reintegration, and, for some women, psychological strengthening.
3. The findings propose a process-oriented conceptual framework for understanding psychosocial adaptation during breast cancer treatment.
4. Social support, spiritual coping, cognitive reappraisal, and therapeutic relationships facilitated psychosocial adaptation.
5. The framework supports continuity of person-centered psychosocial nursing care across the cancer trajectory.

INTRODUCTION

Breast cancer is one of the most common malignancies among women and represents a complex life experience that affects not only physical health but also individuals' psychological, social, and existential well-being.[1] From the moment of diagnosis through surgery, chemotherapy, radiotherapy, and other treatment modalities, women may experience multidimensional psychosocial challenges, including fear, uncertainty, changes in body image, disruption of social roles, and concerns about the future. Consequently, contemporary psycho-oncology perspectives conceptualize the cancer experience not merely as a biomedical condition but as a dynamic biopsychosocial adaptation process that influences multiple dimensions of an individual's life.[2,3]

Radiotherapy is an integral component of breast cancer treatment and has been shown to reduce local recurrence and breast cancer mortality following breast-conserving surgery.[4] Although its physical effects are often less visible than those associated with surgery or chemotherapy, radiotherapy represents a unique stage of treatment during which women are required to reorganize their daily lives, manage uncertainty, and adapt emotionally while continuing active cancer treatment. Concerns related

to the treatment environment, potential side effects, informational needs, and uncertainty about the future are among the psychosocial experiences most frequently reported during this period.[5,6]

Previous qualitative and supportive care studies have consistently demonstrated that women undergoing radiotherapy experience fear, anxiety, uncertainty, informational needs, and treatment-related psychosocial distress, while social support, effective communication, and coping resources facilitate psychological adaptation.[5–7] Although these studies have substantially advanced understanding of patients' psychosocial needs, they have primarily examined individual symptoms, emotional distress, informational needs, or coping strategies as separate psychosocial phenomena. Consequently, relatively little attention has been paid to how these experiences accumulate across successive treatment modalities, evolve over time, and collectively shape women's adaptation throughout the cancer treatment journey. Furthermore, studies including multiple cancer types may obscure experiences specific to women with breast cancer, while recent intervention studies have predominantly focused on reducing distress rather than advancing conceptual understanding of the psychosocial meaning of radiotherapy within the broader treatment trajectory.[5–7]

International psycho-oncology guidelines consistently recommend routine psychosocial assessment, multidisciplinary supportive care, and continuity of care beginning at diagnosis and extending throughout the cancer treatment trajectory.[35–38] These recommendations emphasize that supportive care should respond to patients' changing psychosocial needs across successive phases of treatment through coordinated, person-centered care rather than focusing solely on treatment-specific symptoms. Nevertheless, relatively little qualitative evidence has examined whether this recommended continuity of psychosocial supportive care is reflected in patients' lived experiences during radiotherapy across different healthcare settings.

Within the Turkish context, several qualitative studies have explored the experiences of women diagnosed with breast cancer, highlighting emotional distress, uncertainty, family support, spiritual coping, and changes in everyday life.[8,9,10] However, these studies have generally examined surgery, chemotherapy, radiotherapy, and hormonal therapy together, providing limited insight into the unique psychosocial experience of radiotherapy. Moreover, they have largely described patients' experiences without examining how radiotherapy is situated within the broader psychosocial trajectory of cancer treatment or how psychosocial experiences transform across different stages of that trajectory. Consequently, radiotherapy has predominantly been investigated as an isolated treatment phase rather than as a distinct psychosocial process embedded within the wider cancer experience.

Furthermore, although contemporary international guidelines advocate continuity of psychosocial supportive care across the cancer continuum, there remains limited qualitative evidence exploring whether patients actually experience this continuity throughout their treatment journey. This gap is particularly relevant because understanding patients' lived experiences may help identify discrepancies between guideline-recommended supportive care and routine clinical practice, thereby informing the development of more responsive, longitudinal, and person-centered supportive care models.

Addressing these gaps requires moving beyond describing psychosocial experiences toward understanding how these experiences are interconnected, evolve across treatment stages, and contribute to women's overall adaptation throughout the cancer journey.

Therefore, this study aimed to explore the psychosocial experiences of women undergoing radiotherapy for breast cancer and to provide a broader conceptual understanding of how radiotherapy is experienced within the overall cancer treatment process. Rather than examining radiotherapy as an isolated treatment modality, this study conceptualizes radiotherapy as a distinct psychosocial transformation process embedded within the broader biopsychosocial trajectory initiated at cancer diagnosis. By integrating patients' lived experiences with contemporary supportive care recommendations, the study extends current understanding beyond symptom- or stage-focused descriptions, identifies a potential gap between guideline-recommended psychosocial care and routine clinical practice, and offers a process-oriented perspective that may inform supportive care models, psycho-oncology research, and oncology nursing practice.

METHODS

Study Design

This study employed a **descriptive qualitative design** to explore the psychosocial experiences of women undergoing radiotherapy for breast cancer. Given the limited conceptual understanding of how psychosocial experiences evolve throughout the radiotherapy period and the broader cancer treatment trajectory, an **inductive thematic analysis** following the approach proposed by Braun and Clarke (2006)[11] was selected. This approach enabled an in-depth exploration of participants' experiences while allowing patterns, relationships, and evolving psychosocial processes to emerge directly from the data rather than being constrained by predetermined theoretical assumptions.

Study Setting

The study was conducted in the Radiation Oncology Clinic of a tertiary care training and research hospital in Türkiye. Interviews were carried out in a private consultation room separate from the treatment area to ensure privacy, confidentiality, and uninterrupted communication.

Participants and Sampling

The study included 27 women with breast cancer who were receiving radiotherapy between January and May 2025 and voluntarily agreed to participate. Purposive sampling was used to obtain variation in age, educational background, and illness characteristics in order to capture a broad range of psychosocial experiences.

Data collection continued until thematic saturation was achieved, defined as the point at which no new themes or conceptually meaningful insights emerged.

Data Collection Instruments

Data were collected using:

- A Participant Information Form
- A Semi-Structured Interview Guide

Both instruments were developed following a review of the relevant literature. The preliminary interview guide consisted of 16 open-ended questions and was refined after expert evaluation to improve clarity, relevance, and comprehensiveness. The final interview guide included 11 open-ended questions designed to facilitate rich descriptions of participants' psychosocial experiences throughout the radiotherapy process.

Data Collection Procedure

Face-to-face, in-depth semi-structured interviews were conducted by the first researcher. Written informed consent was obtained from all participants before data collection. Interviews were audio-recorded with participants' permission, and field notes were taken to document contextual observations and non-verbal expressions that supported interpretation of the interview data.

Each interview lasted approximately 30–45 minutes.

Data Analysis

Data were analyzed using the six-phase thematic analysis framework described by Braun and Clarke (2006).[11] Audio recordings were transcribed verbatim and repeatedly reviewed to achieve immersion in the data. Meaningful statements were coded inductively, and related codes were progressively organized into categories and themes through constant comparison across interviews.

The analysis generated:

- 64 initial codes
- 17 categories
- 5 overarching themes

Beyond identifying recurrent themes, the analysis also focused on how participants described the progression and interrelationships of psychosocial experiences throughout the cancer treatment journey. This analytic process enabled the development of a broader process-oriented interpretation of radiotherapy within the overall treatment trajectory rather than limiting interpretation to isolated treatment experiences.

To enhance analytical rigor, coding decisions were independently reviewed by a second researcher, and disagreements were resolved through discussion until consensus was reached.

Trustworthiness

Trustworthiness was established according to the criteria proposed by Lincoln and Guba (1985)[12], including credibility, transferability, dependability, and confirmability.

Credibility was enhanced through prolonged engagement with the data, iterative analysis, and independent review of coding decisions. Transferability was supported by providing detailed descriptions of the study context and participants. Dependability was strengthened by maintaining a transparent analytical process, while confirmability was promoted through reflexive documentation and collaborative review of analytical decisions.

Researcher Characteristics and Reflexivity

Interviews were conducted by a researcher holding a doctoral degree in psychiatric nursing who had received formal training in qualitative research methods. Throughout the research process, the researcher maintained reflexive awareness by continuously examining personal assumptions, prior clinical knowledge, and potential sources of bias that might influence data collection, interpretation, and theme development. Reflexive notes were maintained throughout analysis to support transparency and analytical rigor.

Ethical Considerations

Ethical approval was obtained from the relevant institutional ethics committee before commencement of the study. All participants provided written informed consent before participation. Confidentiality and anonymity were maintained throughout the research process, and the study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Clinical Trial Registration

Clinical trial number: Not applicable.

RESULTS

Participants' Sociodemographic Characteristics

A total of 27 women diagnosed with breast cancer and undergoing radiotherapy participated in the study. Participants ranged in age from 27 to 71 years, with a mean age of 49.1 ± 11.21 years. The majority were married (88.9%) and had children (88.9%).

Regarding educational attainment, nearly half of the participants were illiterate (48.1%), while the remainder had completed primary school (25.9%), middle school (7.4%), high school (7.4%), or university education (11.1%). Most participants were unemployed (96.3%). Overall, the sample consisted predominantly of women with relatively low educational and socioeconomic backgrounds. Participants' sociodemographic characteristics are summarized in Table 1.

Table 1. Sociodemographic Characteristics of the Participants (N = 27)

Variable	Category	n	%
Age (years)	Mean ± SD	49.1 ± 11.2	—
	Range	27–71	—
Marital status	Married	24	88.9
	Single	3	11.1
Education level	Illiterate	13	48.1
	Primary school	7	25.9
	Middle school	2	7.4
	High school	2	7.4
	University	3	11.1
Having children	Yes	24	88.9
	No	3	11.1
Employment status	Employed	1	3.7
	Unemployed	26	96.3

Note. *SD* = standard deviation.

Clinical Characteristics of Participants

Most participants had been diagnosed with breast cancer approximately nine months prior to the interviews and were in the early phase of radiotherapy treatment. All participants had previously undergone additional treatment modalities, including surgery and/or chemotherapy.

The most frequently reported treatment-related side effects were fatigue, weakness, skin dryness, itching, and nausea. Participants' clinical characteristics are presented in Table 2.

Table 2. Clinical Characteristics of Participants (N = 27)

Variable	n	%
Presence of chronic disease		
Yes	15	55.6
No	12	44.4
Cancer stage		
Stage I	12	44.4
Stage II	12	44.4
Stage III	3	11.1
Stage IV	0	0.0

The treatment-related side effects reported by participants are summarized in Table 3.

Table 3. Treatment-Related Side Effects*

Side Effect	n	%
Nausea	14	53.6
Vomiting	5	18.5
Fatigue	14	51.9
Difficulty swallowing	9	33.3
Weakness	18	66.7
Skin dryness	15	55.6
Skin itching	14	51.9
Pain	12	44.4
Skin wounds	3	11.1
Loss of appetite	12	44.4
Shortness of breath	5	17.9
Exhaustion	6	22.2

* Participants reported more than one side effect; therefore, percentages exceed 100%.

Psychosocial Findings

Findings were organized according to the themes derived from participants' narratives. Visual analyses supporting linguistic patterns are presented in Supplementary Figures S1–S2.

Word cloud analysis demonstrated that terms such as *self*, *illness*, *fear*, *chemotherapy*, and *difficult* were among the most frequently used expressions. In contrast, concepts such as *prayer*, *God*, *gratitude*, and *support* highlighted the importance of spiritual and social coping resources.

Network visualizations indicated that participants' experiences were primarily structured around illness, fear, and treatment-related processes, whereas family support, faith, and social support showed strong connections with these areas of distress.

Sentiment analysis revealed a predominance of negative emotions. Nevertheless, support, faith, hope, and trust emerged as protective factors that appeared to strengthen psychological resilience.

A total of 64 codes were identified and grouped into 17 categories, which were subsequently organized into five main themes. An overview of the main themes, subthemes, descriptions, and representative participant quotations is provided in Table 4.

Table 4. Code Relationship Map

Main Themes	Subthemes	Description	Example Participant Quote
Theme 1: Illness Perception and the Diagnostic Process	Diagnostic process	How participants recognized the illness	"While getting dressed, I noticed something in my breast…" (P21)
	Emotional responses	Shock, fear, sadness	"When they told me I had cancer, everything stopped." (P6)
	Meaning-making	Interpreting the illness as a fatal threat or spiritual test	"I believe this illness is a test from God." (P3)
Theme 2: Psychosocial Impact of Pre-Radiotherapy Treatments	Effects of chemotherapy	Physical and emotional burden	"Chemotherapy was very difficult…" (P6)
	Effects of surgery	Fear and relief	"After surgery, I thought the worst part was over." (P4)
	Changes in social life	Isolation	"I did not leave the house for months…" (P27)
Theme 3: Experiences During the Radiotherapy Process	Initial perceptions	Fear and uncertainty	"I was very scared before starting radiotherapy." (P2)
	Physical effects	Fatigue, skin reactions	"My chest became red and itchy…" (P26)
	Emotional responses	Anxiety, panic	"Sometimes I panicked inside the machine." (P27)
	Privacy concerns	Feelings of embarrassment	"I felt embarrassed during treatment." (P7)
Theme 4: Coping Mechanisms and Social Support	Cognitive coping	Positive thinking	"I tried to motivate myself." (P10)
	Spiritual coping	Prayer and faith	"Praying gave me strength." (P12)
	Social support	Family support	"My family was always there for me." (P5)
Theme 5: Psychosocial Transformation	Cognitive change	Reduced fear	"After a while, it no longer seemed that frightening." (P19)
	Positive reframing	Viewing treatment as healing	"I began to see radiation as a healing light." (P3)

	Reintegration	Returning to everyday life	“I gradually started doing household chores again.” (P1)

Theme 1: Illness Perception and the Diagnostic Process

This theme encompasses participants’ experiences of receiving a diagnosis, their emotional responses to the diagnosis, and the ways in which they interpreted the illness. The most frequently reported emotions were sadness (f = 15) and fear (f = 9).

Pathway to Diagnosis

Participants described two primary pathways to diagnosis: self-detection of symptoms and diagnosis through screening programs.

“While getting dressed, I noticed something in my breast and decided to go to the hospital.” (P21)

“Healthcare staff came… they performed a mammogram… and said it looked suspicious…” (P1)

Emotional Responses at Diagnosis

The diagnostic period was described as a time of intense emotional distress.

“I felt completely disconnected from the world.” (P6)

The waiting period before treatment initiation was also perceived as psychologically overwhelming.

“Those three months felt like a lifetime.” (P21)

Illness Perception and Meaning-Making

Participants interpreted the illness in different ways. While some perceived it as a fatal threat, others viewed it as a spiritual test, and some gradually normalized the experience over time.

“I thought I would never recover.” (P2)

“This is a test from God.” (P3)

“Over time, it became something ordinary, like the flu.” (P17)

These findings suggest that receiving a cancer diagnosis is not merely a medical event but also a profound psychosocial experience shaped by emotional reactions and meaning-making processes.

Theme 2: Psychosocial Impact of Pre-Radiotherapy Treatments

Participants described the pre-radiotherapy treatment period as highly challenging both physically and psychologically. Analysis of the coding matrix indicated that the most frequently reported experience

was the burden associated with chemotherapy and its side effects (f = 13), followed by intense fatigue and exhaustion (f = 11).

The physical burden of treatment substantially affected daily life, resulting in difficulties maintaining routine activities (f = 7), reduced social contact due to fear of infection (f = 7), and subsequent social isolation (f = 6) (Supplementary Figure S2).

Subtheme 2.1: Psychological Impact of Chemotherapy

Participants emphasized that the effects of chemotherapy extended beyond physical symptoms and had profound psychological consequences. Hair loss and other bodily changes generated concerns related to body image, while fatigue, emotional fluctuations, and irritability were frequently reported experiences.

“Chemotherapy was very difficult… my hair fell out… I constantly felt nauseous.” (P6)

Some participants also described emotional exhaustion and an inability to derive pleasure from everyday life.

“Even if the world had been on fire, I would not have noticed… I could not enjoy anything.” (P3)

Subtheme 2.2: Psychological Impact of Surgery

Surgical treatment was associated with both fear and relief. Some participants reported initially struggling to accept the necessity of surgery.

“I kept wondering whether there was another way. But in the end, I had no choice.” (P2)

In contrast, others described experiencing psychological relief following surgery and viewed it as an important step toward recovery.

“After the surgery, I thought it was over… I felt relieved.” (P4)

Subtheme 2.3: Impact on Social Life

The majority of participants reported that the treatment process significantly affected their social lives. Social activities decreased because of infection concerns and physical fatigue, and some participants withdrew from social environments altogether.

“I have not left the house for a year.” (P27)

Others reported deliberately limiting social interactions due to concerns about infection.

“When visitors came, I stayed in my room.” (P17)

Overall, these findings indicate that pre-radiotherapy treatments had substantial effects on participants’ physical condition, psychological well-being, and social functioning.

Theme 3: Experiences During the Radiotherapy Process

Participants' narratives revealed radiotherapy to be a multidimensional experience. The process typically began with anxiety and uncertainty and subsequently evolved through physical symptoms, emotional responses, and experiences related to the treatment environment.

Analysis of the coding matrix showed that the most frequently reported experiences were fear (f = 13) and anxiety associated with insufficient information (f = 12). Participants also reported physical discomfort (f = 7) and skin-related symptoms such as itching and redness (f = 5) (Supplementary Figure S3).

In addition, perceptions of privacy and trust in healthcare professionals emerged as important dimensions shaping the overall treatment experience.

Subtheme 3.1: Perceptions of and Initial Reactions to Radiotherapy

Most participants reported experiencing anxiety before initiating radiotherapy. These concerns were primarily related to insufficient information and negative stories heard from others.

"I did not even want to accept radiotherapy… people around me convinced me." (P2)

Some participants indicated that their fears diminished after the first treatment session and that radiotherapy was less threatening than they had anticipated.

"I was terrified before going in… but afterward I realized it was not as frightening as I had expected." (P19)

Subtheme 3.2: Physical Side Effects

Participants reported a range of physical symptoms during radiotherapy, including pain, fatigue, and skin-related changes.

"Besides the fear, my back was hurting as well." (P24)

Skin reactions, particularly redness and hardening of the treated area, were commonly reported.

"After the radiation treatment, my chest became red and hardened." (P25)

Some participants also noted that the sounds produced by the treatment machine were initially unsettling.

"I was a little afraid of that sound." (P7)

Subtheme 3.3: Emotional Responses

Radiotherapy was associated with a variety of emotional reactions. Many participants described experiencing significant anxiety and tension, particularly during the initial treatment sessions.

“When I first came here, I felt extremely nauseous and dizzy.” (P3)

Some participants reported symptoms resembling panic attacks.

“I feel as if I am having a panic attack.” (P26)

The prolonged duration of treatment also led to feelings of fatigue and a desire for the process to end.

“I just want it to be over.” (P24)

Subtheme 3.4: Perceptions of Privacy

Some participants expressed sensitivity regarding bodily privacy during treatment. The need to remove clothing and the presence of male healthcare professionals were initially perceived as uncomfortable.

“Honestly, I feel embarrassed.” (P7)

However, over time, participants adapted to the treatment environment, and increasing trust in healthcare professionals appeared to reduce their discomfort.

“Later, I got used to it… I started to see them as if they were my brothers.” (P16)

Subtheme 3.5: Experiences Related to the Treatment Environment

Participants emphasized that the attitudes of healthcare professionals played a crucial role in shaping their treatment experiences. Supportive and empathetic interactions contributed to a more positive perception of the radiotherapy process.

“The staff were very kind.” (P21)

In addition, the physical characteristics of the treatment environment also influenced participants’ experiences.

“There was air conditioning… I liked that.” (P16)

Theme 4: Psychosocial Transformation During the Radiotherapy Process

Participants’ narratives indicated that radiotherapy was experienced not only as a physical treatment but also as a dynamic psychosocial transformation process. Initial uncertainty, fear, and negative expectations gradually evolved into more positive interpretations as treatment progressed.

Analysis of the coding matrix revealed that the most prominent finding was the transformation of initially negative perceptions of radiotherapy into more positive meanings over time (f = 21). This transformation

was further reflected in the replacement of fear of death and disease recurrence with hope (f = 13) and participants' gradual reintegration into social life (f = 7) (Supplementary Figure S4).

Subtheme 4.1: Changes in Thoughts, Perceptions, and Emotions

Participants reported that their thoughts and emotional responses toward radiotherapy changed over time. Initial fear and uncertainty gradually diminished, and treatment came to be viewed from a more positive perspective.

"I realized it was not as serious as I thought… I am no longer afraid; I feel hopeful." (P2, P4)

Some participants used metaphors to describe radiotherapy as a healing process. Expressions such as *cleansing*, *drying out*, and *light* reflected a strong belief that the treatment was eliminating the disease.

"Even if there are bad cells left, it dries them out… it cleans that area." (P6)

"I see it as a beautiful light… a healing light." (P3)

These narratives suggest that participants moved away from fear-based interpretations toward more hopeful and constructive forms of meaning-making.

Subtheme 4.2: Changes in Social Life and Reintegration

As radiotherapy progressed, some participants reported gradually returning to daily activities and social roles. Re-engagement in routine activities contributed to restoring a sense of normalcy and personal strength.

"I started cooking in my own kitchen again." (P1)

"I can even milk the cows." (P1)

Some participants also began cautiously resuming social activities.

"They took me out… I attended a wedding, but I did not shake hands with anyone." (P7, P22)

However, not all experiences were positive. Some participants reported social distancing and stigmatization from others.

"No one wanted to come near me because I had cancer." (P27)

Overall, these findings demonstrate that participants' experiences evolved over time, with initial fear and uncertainty gradually giving way to hope, acceptance, and renewed meaning-making. This transformation highlights radiotherapy as not merely a physical treatment phase but also a dynamic process of psychosocial adaptation.

Theme 5: Coping Mechanisms and Social Support Systems

This theme encompasses the personal and social resources participants used to manage psychosocial challenges throughout the diagnosis and treatment process. Findings indicated that participants primarily relied on spiritual beliefs, cognitive reframing, and social support as coping resources.

Analysis of the code distribution revealed that the most frequently reported coping strategies were prayer and recitation of religious texts (f = 17), followed by faith and surrender to God (f = 14). Cognitive strategies, such as positive reappraisal and acceptance, also emerged as important coping resources (f = 13) (Supplementary Figure S5).

Subtheme 5.1: Cognitive and Behavioral Strategies

Participants described using various cognitive and behavioral strategies to cope with fear and uncertainty. These included positive thinking, self-motivation, engagement in daily activities, and seeking information from healthcare professionals.

“People worry for nothing.” (P1)

Some participants emphasized self-motivation as an important coping strategy.

“I kept telling myself that I would get through this as well.” (P16)

Engagement in everyday activities was also described as an important coping mechanism.

“I go out to the garden… and when I feel well, I can even milk the cows.” (P1)

These findings suggest that participants did not rely solely on emotional support but also attempted to adapt to the treatment process by restructuring their ways of thinking and daily routines.

Subtheme 5.2: Spiritual Coping

Spiritual coping emerged as one of the most prominent coping strategies. Participants frequently reported that prayer and religious beliefs provided them with psychological comfort and strength.

“I pray every day… and blow onto my chest.” (P25)

Some participants interpreted their illness as a divine test.

“I entrusted myself to God.” (P2)

“If He gave us this illness, it must mean that He loves us.” (P13)

These narratives suggest that spiritual beliefs functioned not only as religious practices but also as important psychological resources for meaning-making and coping with uncertainty.

Subtheme 5.3: Family and Social Support

Support from family members and close social networks played an important role in participants' psychological adaptation. Many participants reported that support from spouses, children, and relatives helped them feel stronger throughout the treatment process.

"My husband means everything to me." (P3)

However, some participants described managing the process more independently.

"I always went to radiotherapy alone… I stand on my own feet." (P16)

Others reported insufficient social support.

"I did not receive support from anyone." (P20)

These findings indicate that social support was not equally available to all participants but functioned as an important resource facilitating psychological adaptation when present.

Subtheme 5.4: Professional Support

Participants emphasized that the attitudes and approaches of healthcare professionals played a significant role in facilitating coping. Supportive, informative, and reassuring communication contributed to a more manageable perception of the treatment process.

"The staff were very kind." (P21)

Participants reported that the information and support provided by healthcare professionals increased their sense of security throughout treatment.

In addition, institutional support mechanisms appeared to reduce participants' burden and facilitate adaptation to the treatment process.

Overall, the findings suggest that coping was shaped not solely by individual efforts but through the combined influence of spiritual resources, family support, social relationships, and professional support systems.

Summary of Findings

Overall, two principal conclusions emerged from the findings of this study.

First, participants' experiences across diagnosis, chemotherapy, surgery, and radiotherapy appeared not as isolated events but as components of a dynamic and holistic psychosocial transformation process that evolved over time, accumulated across treatment stages, and was shaped through ongoing interactions between experiences.

Second, within this broader transformation process, radiotherapy emerged as a distinct psychosocial transformation process characterized by movement from fear and uncertainty toward adaptation, meaning-making, and reintegration. Among some participants with stronger social support and coping resources, this process was further accompanied by psychological strengthening.

These two interconnected findings are visually summarized in Figure 1.

DISCUSSION

The findings of this study extend existing qualitative literature by demonstrating that women's psychosocial experiences during radiotherapy are not isolated responses to a single treatment modality but constitute part of a broader biopsychosocial trajectory that begins at diagnosis and evolves throughout the cancer treatment journey. Within this broader trajectory, radiotherapy emerged as a distinct psychosocial adaptation process characterized by progressive changes in emotions, illness perceptions, coping resources, and personal meaning. Beyond advancing conceptual understanding, these findings also highlight the importance of viewing psychosocial supportive care as a continuous process that extends across successive treatment modalities rather than as a series of treatment-specific interventions. Accordingly, the findings are discussed from a process-oriented perspective to illustrate both the continuity of psychosocial experiences across treatment stages and their implications for supportive care.

Experiencing Diagnosis as an Existential Disruption

The moment of diagnosis was experienced as a profound turning point characterized by intense fear, shock, helplessness, and uncertainty. Participants' expressions such as *“time stopped,” “I froze,”* and *“everything changed at once”* reflected not only confrontation with illness but also an awareness of the fragility of life continuity. This experience represents a profound existential disruption in which fundamental assumptions regarding the body, the future, and life plans are challenged.

These findings are consistent with the concept of **biographical disruption**, which suggests that chronic illness interrupts the continuity of an individual's life narrative and initiates a process of radical reconstruction.[13] Consistent with previous research, a cancer diagnosis has been described as a critical disruption associated with emotional shock, fear, and heightened awareness of mortality.[14,15]

The manner in which the diagnosis is received also appears to shape this experience. Individuals who discovered symptoms themselves and subsequently sought medical care reported greater uncertainty and feelings of isolation, whereas those diagnosed through screening programs tended to experience the process within a more structured and organized framework.[15]

More importantly, the meaning attributed to the illness directly influenced emotional responses and coping strategies. Whether the disease was perceived as a fatal threat, a divine test, or a condition that gradually became normalized appeared to shape the direction of psychological adaptation.

Contemporary studies suggest that cognitive and spiritual meaning-making processes can reshape threat perceptions and facilitate adaptation.[16][17]

Taken together, these findings indicate that the diagnostic period represents a critical phase during which individuals begin to reconstruct their assumptions about health, identity, and the future. Importantly, diagnosis should be understood not merely as an acute emotional event but as the starting point of a longitudinal psychosocial adaptation process that shapes how subsequent treatments, including radiotherapy, are experienced and interpreted. **These findings reinforce international psycho-oncology recommendations advocating routine psychosocial assessment and supportive care beginning at diagnosis, suggesting that timely supportive interventions during this early phase may facilitate patients' adaptation throughout subsequent stages of treatment.**

The Psychosocial Impact of Previous Treatments on the Body and Identity

Chemotherapy and surgical interventions were described as highly challenging experiences characterized by fatigue, loss, vulnerability, and feelings of estrangement from the body. Hair loss, severe fatigue, and bodily changes disrupted participants' relationships with their bodies and created tension between the “former self” and the “ill self.” During this process, the body ceased to be merely a biological entity and became a visible representation of illness, leading to profound transformations in self-perception.

These findings are consistent with the concept of **embodiment**, which conceptualizes the body as a fundamental component of identity and lived experience.[18] Bodily changes associated with illness reshape how individuals perceive themselves and often necessitate a reconstruction of identity. Similarly, the **illness identity framework** proposes that chronic illness reorganizes an individual's sense of self and personal identity.[19][20]

Previous research has demonstrated that breast cancer treatments can substantially affect body image, self-esteem, and psychosocial well-being among women. In particular, surgery-related bodily changes and chemotherapy-related hair loss have been associated with body image concerns, diminished self-worth, and impaired quality of life.[21][22] Recent qualitative evidence also suggests that these bodily changes may extend beyond physical appearance and negatively affect women's perceptions of femininity, womanhood, and social identity over time.[22]

These bodily changes affect not only the individual but also interpersonal relationships. Fatigue, emotional vulnerability, and visible physical changes may contribute to social withdrawal and difficulties within family relationships. This finding is consistent with studies demonstrating that cancer-related stress can have transformative effects on social relationships.[21][23]

The surgical experience was often described as inherently dual in nature. On one hand, it generated feelings of loss related to bodily integrity; on the other hand, it was perceived as an important step toward disease control, bringing feelings of hope and relief.[20][24]

Taken together, these findings suggest that chemotherapy and surgery constitute a critical phase of body–identity tension within the broader psychosocial cancer experience. Rather than representing experiences that end before radiotherapy begins, these treatment phases appear to shape the emotional and cognitive context in which radiotherapy is subsequently experienced. This finding emphasizes that radiotherapy cannot be fully understood independently of the broader treatment trajectory. **These observations further suggest that supportive care should be planned longitudinally, acknowledging how experiences accumulated during earlier treatments shape patients' psychosocial responses to radiotherapy and influence adaptation throughout the cancer continuum.**

Experiencing Radiotherapy as a Psychosocial Adaptation Process

The findings of this study suggest that radiotherapy was experienced not as a discrete treatment episode but as a dynamic psychosocial adaptation process that evolved over time. Participants progressively reconstructed their perceptions of illness, treatment, and personal coping capacity. Initial experiences of fear, uncertainty, and loss of control gradually evolved into greater trust, acceptance, and confidence in their ability to cope. This evolution reflected not only adaptation to treatment itself but also a broader reorganization of emotional, cognitive, and social responses throughout the cancer journey. **From a supportive care perspective, these findings indicate that psychosocial care during radiotherapy should be responsive to patients' changing needs and should evolve alongside their adaptation process rather than being delivered as isolated supportive interventions.**

This transformation is consistent with **Transition Theory**, which proposes that individuals move from states of vulnerability and uncertainty toward greater stability and integration over time.[25] Similarly, **Stress and Coping Theory** suggests that individuals continuously reappraise perceived threats and develop coping strategies in response to changing circumstances.[26]

Existing literature indicates that fear and anxiety experienced at the onset of radiotherapy are largely driven by uncertainty and insufficient information, whereas increased understanding of the treatment process enables patients to develop more realistic and accepting appraisals of their experience.[2,27]

Importantly, our findings extend previous qualitative evidence by suggesting that psychosocial adaptation during radiotherapy is not solely a consequence of increased familiarity with treatment or reduced uncertainty. Rather, adaptation appears to emerge through the cumulative influence of previous treatment experiences, evolving illness meanings, interpersonal relationships, and available psychosocial resources. This broader process-oriented interpretation not only helps explain why women with similar clinical characteristics may experience radiotherapy in markedly different ways but also highlights the importance of **individualized, longitudinal, and person-centered supportive care** throughout treatment.

However, the radiotherapy experience is not shaped solely by cognitive processes. Physical symptoms such as pain, fatigue, and skin changes, as well as sensory aspects of the treatment environment, emerged as important factors influencing psychological experiences during treatment.[28]

Perceptions of privacy, sensory experiences associated with the treatment environment, and the quality of relationships established with healthcare professionals were also identified as important influences on adaptation. Initial discomfort related to bodily exposure and interactions with healthcare professionals of the opposite sex appeared to diminish over time as trust developed and therapeutic communication was established, making these concerns more manageable.[29]

Taken together, these findings support a **process-oriented understanding of psychosocial supportive care** during radiotherapy, suggesting that supportive interventions should address the evolving nature of patients' psychosocial experiences rather than focusing exclusively on treatment-related symptoms. In particular, **structured, individualized, and continuous supportive care—including timely information provision, therapeutic communication, and routine psychosocial assessment—** appears to be central to facilitating adaptation. Such approaches may reduce uncertainty, enhance predictability, strengthen individuals' sense of control, and support coping capacity throughout the radiotherapy process.[2,27,35–38]

From Fear to Meaning-Making: Reinterpreting the Radiotherapy Experience

Beyond psychosocial adaptation, the findings of this study suggest a broader conceptual interpretation of the radiotherapy experience by demonstrating how participants progressively reconstructed the meanings they attributed to both radiotherapy and the overall cancer journey. Throughout treatment, women described a shift from fear, uncertainty, vulnerability, and concerns about death toward hope, acceptance, gratitude, and renewed meaning. Rather than representing isolated emotional reactions, these experiences reflected an evolving process through which participants continuously re-evaluated the significance of illness and treatment within the context of their lives. This transformation may also be understood in relation to **existential distress**, a phenomenon characterized by threats to meaning, identity, purpose, and mortality awareness among individuals facing cancer.[17]

This interpretation is consistent with **Meaning-Making Theory**, which proposes that individuals confronted with highly stressful or traumatic experiences attempt to reconstruct meaning in order to restore psychological equilibrium.[16] Participants' narratives suggest that breast cancer and radiotherapy were experienced not only as sources of distress but also as experiences that prompted reflection, reappraisal, and personal reconstruction. Similarly, **Stress and Coping Theory**[26] explains how situations initially perceived as threatening may, over time, be reappraised and interpreted in more manageable ways.

Previous research has demonstrated that cancer is not solely a source of suffering and loss but may also stimulate cognitive, emotional, and existential reconstruction.[30] Meaning-focused coping strategies, cognitive reframing, and the integration of illness into one's life narrative have been associated with reduced fear and uncertainty, improved psychological adaptation, and enhanced emotional well-being.[16] However, previous studies have generally described these positive psychological changes as outcomes of cancer survivorship or coping. In contrast, our findings suggest that meaning reconstruction evolves progressively during the radiotherapy process itself and is continuously shaped by prior treatment experiences, ongoing psychosocial adaptation, and changing illness perceptions.

Participants' descriptions of radiotherapy clearly reflected this process of reinterpretation. Expressions initially characterized by fear, anxiety, and concerns about death gradually evolved into narratives emphasizing hope, acceptance, gratitude, and personal strength. This transformation reflects not only adaptation to treatment but also the reintegration of the illness experience into participants' broader life narratives. Such observations are consistent with literature suggesting that individuals may experience positive psychological changes alongside adaptation following cancer.[16,31]

At a deeper existential level, participants' use of metaphors such as **light, purification, and healing** was particularly noteworthy. These metaphors suggest that radiotherapy came to be interpreted not merely as a threatening medical intervention but as a meaningful and restorative experience. Narrative approaches to illness similarly emphasize that the language individuals use often reflects processes of meaning reconstruction and identity reorganization.[30,31]

Some participants further reported that the cancer experience prompted them to reconsider life priorities, strengthen interpersonal relationships, deepen spiritual beliefs, and develop a greater appreciation for life. These findings are consistent with the concept of posttraumatic growth, which refers to positive psychological changes that may occur following highly challenging life events.[41] Accordingly, these observations suggest that supportive care should extend beyond symptom management to include interventions addressing patients' existential concerns, personal values, sources of meaning, and spiritual needs throughout treatment.

Taken together, these findings extend current understanding of radiotherapy by suggesting that women do not simply adapt to treatment but progressively reinterpret its personal meaning within the broader cancer trajectory. This process-oriented interpretation highlights radiotherapy as a stage of ongoing psychosocial transformation through which illness, suffering, and recovery become integrated into a coherent life narrative rather than remaining isolated treatment experiences. **From a supportive care perspective, facilitating opportunities for meaning-making, reflective communication, and psychosocial support may help patients integrate illness, treatment, and recovery into a coherent life narrative while promoting long-term psychosocial well-being.**

Coping Processes and Sources of Resilience

The findings of this study suggest that women undergoing breast cancer treatment and radiotherapy develop multidimensional and dynamic coping processes to manage fear, uncertainty, vulnerability, and treatment-related challenges. However, coping was not experienced merely as a reaction to psychological distress. Rather, participants' narratives indicated that coping resources functioned as active mechanisms that continuously facilitated psychosocial adaptation throughout the broader cancer treatment journey. **From a supportive care perspective, understanding how these coping resources emerge, interact, and evolve across treatment is essential for developing interventions that strengthen patients' adaptive capacities throughout the cancer continuum.**

These findings are consistent with **Stress and Coping Theory**, which proposes that individuals continuously appraise stressful situations and modify their coping strategies in response to changing internal and external demands.[26] Similarly, **Resilience Theory** emphasizes individuals' capacity to adapt, recover, and maintain psychological functioning despite adversity.[32] Considered together, these theoretical perspectives suggest that coping and resilience should not be viewed merely as outcomes of adaptation but rather as dynamic processes that actively facilitate movement across successive phases of psychosocial adjustment. This interpretation further supports contemporary supportive care approaches that emphasize strengthening patients' existing psychological, social, and spiritual resources throughout treatment.

Participants identified several psychosocial resources that contributed to this adaptive process. **Cognitive reappraisal** emerged as an important mechanism through which illness-related experiences became more understandable and manageable. Expressions such as *"I will get through this too"* reflected participants' efforts to maintain hope, regain a sense of control, and reinterpret cancer-related challenges within a more manageable cognitive framework. Previous studies have similarly demonstrated that adaptive cognitive coping strategies strengthen psychological adjustment, reduce emotional distress, and facilitate adaptation among individuals living with cancer.[2]

Spiritual coping also emerged as a major source of resilience. Practices such as prayer, faith, surrender, and attributing personal meaning to illness appeared to alleviate emotional burden while enhancing participants' capacity to tolerate uncertainty. Consistent with previous literature, spiritual resources may serve as important sources of hope, psychological security, and resilience, particularly when individuals perceive limited control over their circumstances.[33,34] Furthermore, spiritual beliefs and meaning-making processes provide individuals with a framework for interpreting adversity, preserving a sense of purpose, and maintaining psychological equilibrium throughout the cancer experience.[16,17] These findings suggest that supportive care should acknowledge patients' spiritual resources as potential components of holistic psychosocial care rather than considering them solely as personal coping preferences.

Relational resources also played a central role throughout the treatment process.[7] Support from family members, encouragement from significant others, and trust-based relationships with healthcare professionals contributed to perceptions of treatment as more secure, predictable, and manageable. Consistent with existing literature, social support has been associated with lower levels of psychological distress, greater psychological well-being, and improved adaptation to cancer.[2,23] Likewise, therapeutic communication and trusting relationships with healthcare professionals have been identified as important facilitators of emotional adjustment and psychosocial adaptation throughout cancer treatment.[29] **These findings further suggest that supportive care should intentionally strengthen therapeutic relationships and integrate psychosocial support into routine oncology care rather than limiting supportive interventions to periods of evident psychological distress.**

Importantly, our findings suggest that these psychosocial resources should not be viewed as independent protective factors operating in isolation. Rather, they function interactively within an

evolving psychosocial adaptation process, continuously influencing how women interpret treatment experiences, reconstruct illness meanings, and respond to changing emotional and existential challenges across the cancer trajectory. **This dynamic interaction reinforces the need for supportive care models that recognize the changing balance of psychosocial resources throughout successive phases of cancer treatment and tailor supportive interventions accordingly.**

Collectively, these findings indicate that psychosocial adaptation during breast cancer treatment is shaped not only by treatment experiences themselves but also by the psychosocial resources individuals are able to access and mobilize throughout their illness journey. Cognitive reappraisal, spiritual coping, social support, and trust in healthcare professionals appear to function as key resilience resources that facilitate progression from fear and uncertainty toward adaptation, acceptance, and meaning-making.

Accordingly, psychosocial adaptation should be understood not merely as a process of adjusting to treatment but as a dynamic process encompassing ongoing reinterpretation, reintegration, and, for some individuals, psychological strengthening. **From a clinical perspective, these findings support supportive care approaches that continuously assess and strengthen patients' cognitive, spiritual, social, and relational resources throughout the cancer trajectory rather than focusing exclusively on treatment-specific symptoms.** This process-oriented perspective further supports the conceptualization of radiotherapy as an integral stage within the broader biopsychosocial transformation associated with the cancer treatment journey.

Biopsychosocial Transformation from Diagnosis to Radiotherapy and the Distinct Position of Radiotherapy Within the Cancer Journey

When participants' narratives were considered as a whole, the findings suggested a broader conceptual understanding of psychosocial adaptation during breast cancer treatment. Rather than representing isolated responses to individual treatment modalities, psychosocial experiences appeared to constitute a continuous biopsychosocial transformation process beginning at diagnosis and evolving throughout the cancer treatment journey. Within this broader trajectory, radiotherapy emerged as a distinct psychosocial context in which previously accumulated experiences were revisited, reinterpreted, and integrated into participants' evolving understanding of illness and recovery. **This broader conceptualization aligns with contemporary supportive care approaches, which emphasize continuity of psychosocial care across the cancer continuum rather than focusing on isolated treatment episodes.**

This transformation was neither linear nor uniform but cumulative, interactive, and dynamic. Fear, uncertainty, and mortality awareness emerging at diagnosis became intertwined with the physical, emotional, and social consequences of chemotherapy and surgery, collectively shaping how women subsequently experienced radiotherapy. Accordingly, radiotherapy should not be viewed as an independent treatment episode but rather as a psychosocial stage embedded within the broader cancer trajectory, during which previous experiences are reorganized, reinterpreted, and integrated. **Viewing radiotherapy within this broader context highlights the importance of supportive care strategies that**

acknowledge the cumulative influence of previous treatment experiences on patients' ongoing psychosocial adaptation.

As illustrated in **Figure 2**, psychosocial transformation begins at diagnosis and continues throughout successive stages of cancer treatment. Importantly, the figure does not depict a sequence of independent treatment experiences but rather illustrates how psychosocial experiences accumulate, interact, and evolve across the cancer trajectory. Within this broader framework, radiotherapy occupies a distinctive position as a period during which previous treatment experiences are cognitively and emotionally reinterpreted while psychosocial adaptation becomes increasingly prominent. **The figure also illustrates how supportive care needs evolve throughout the cancer journey, highlighting opportunities for continuous psychosocial assessment and individualized supportive interventions across successive treatment stages.**

Unlike chemotherapy and surgery, radiotherapy was not primarily described in relation to physical loss or bodily change. Instead, participants more frequently portrayed radiotherapy as a period characterized by psychological adaptation, meaning reconstruction, and gradual reintegration into everyday life. During this phase, women attempted to make sense not only of their current treatment but also of previous treatment experiences, losses, fears, and expectations for the future. Consequently, radiotherapy appeared to function as a transitional psychosocial space in which accumulated experiences from earlier stages of treatment were reorganized into a more coherent understanding of illness and recovery.

This distinction suggests that the psychosocial significance of radiotherapy extends beyond its biomedical function and reflects its unique position within the broader cancer treatment experience. **Recognizing this distinctive position has important implications for supportive care because patients' psychosocial needs during radiotherapy extend beyond symptom management and encompass ongoing emotional adaptation, meaning reconstruction, existential concerns, and preparation for life beyond active treatment.**

Moreover, the present findings suggest that radiotherapy represents a particularly important period for implementing person-centred supportive care. As patients begin to reinterpret earlier treatment experiences while simultaneously anticipating the future, opportunities emerge for therapeutic communication, psychosocial assessment, strengthening coping resources, facilitating meaning-making, and supporting reintegration into everyday life. Rather than representing the final stage of active treatment alone, radiotherapy may therefore constitute a pivotal phase for promoting long-term psychosocial adaptation and well-being.

Collectively, these findings support a **process-oriented conceptualization of supportive care**, suggesting that psychosocial interventions should not be organized solely according to individual treatment modalities but should instead accompany patients continuously throughout the cancer trajectory. Such an approach may enable oncology teams to anticipate changing psychosocial needs, provide individualized supportive care at critical transition points, and facilitate adaptation across the continuum of cancer care.

Radiotherapy-Specific Psychosocial Transformation Process

Although radiotherapy was embedded within the broader biopsychosocial transformation associated with the cancer treatment journey, participants also described radiotherapy itself as a distinct psychosocial transformation process characterized by its own internal dynamics. Rather than representing fixed sequential stages, this process reflected continuously interacting psychosocial experiences that evolved throughout treatment. **From a supportive care perspective, recognizing these evolving experiences may facilitate the delivery of timely, individualized, and person-centred psychosocial interventions that respond to patients' changing supportive care needs during radiotherapy.**

The findings indicated that this process generally evolved around the following experiential domains:

1. Fear and Uncertainty
2. Adaptation
3. Meaning-Making
4. Reintegration

As illustrated in **Figure 3**, these experiential domains should not be interpreted as rigid or universal stages. Rather, they represent interconnected psychosocial experiences that may overlap, recur, or progress differently across individuals depending on previous treatment experiences and available psychosocial resources. **Accordingly, supportive care should remain flexible and responsive to patients' changing psychosocial needs rather than assuming a uniform progression through predefined stages.** Furthermore, among participants with stronger facilitating resources—such as social support, spiritual coping, trust in healthcare professionals, and cognitive reappraisal—an additional process of **psychological strengthening** appeared to emerge. **Importantly, psychological strengthening should not be regarded as an expected outcome for every individual but rather as a potential outcome that may emerge when personal and supportive care resources are effectively mobilized throughout treatment.**

Notably, some participants initially perceived radiotherapy as a source of fear and threat but later described it using metaphors such as **healing light, sunlight, brightness, and purification**. These metaphors provide compelling illustrations of how participants progressively reconstructed the meaning of radiotherapy, transforming it from a feared medical procedure into an experience associated with hope, healing, and personal growth. **These observations further suggest that opportunities for therapeutic communication, reflective dialogue, and meaning-centred supportive care may play an important role in facilitating patients' reinterpretation of treatment experiences.**

Taken together, these findings offer a broader conceptual understanding of psychosocial adaptation during breast cancer treatment by integrating two complementary perspectives: **(1) a cumulative biopsychosocial transformation extending from diagnosis throughout the cancer journey, and (2) a radiotherapy-specific psychosocial transformation process embedded within that broader trajectory.**

This process-oriented interpretation extends current qualitative literature by emphasizing the continuity of psychosocial change across treatment stages while highlighting the distinctive psychosocial role of radiotherapy within the overall cancer experience. **From a supportive care perspective, this conceptualization further suggests that psychosocial interventions should accompany patients continuously throughout the cancer trajectory rather than being organized solely around individual treatment modalities.**

Building on this conceptual framework, **the following process-oriented nursing implications translate these findings into practical supportive care recommendations. Guided by contemporary psycho-oncology guidelines, these recommendations emphasize continuity of psychosocial assessment, individualized supportive care, therapeutic communication, and person-centred interventions that respond to patients' evolving psychosocial needs across successive phases of cancer treatment.**

Process-Oriented Care Approaches

The process-oriented conceptualization emerging from this study has important implications for oncology nursing and supportive care practice. Contemporary psycho-oncology guidelines consistently recommend routine psychosocial assessment, multidisciplinary supportive care, and continuity of care beginning at diagnosis and extending throughout the cancer treatment trajectory. However, participants' narratives in the present study suggest that the continuity envisioned by these guidelines was not always apparent within their individual treatment experiences. Psychosocial support was frequently perceived in relation to specific treatment phases rather than as a coordinated process extending across the broader cancer journey.

Rather than indicating deficiencies in care delivery, these findings highlight opportunities to further strengthen the implementation of longitudinal psychosocial supportive care within routine oncology practice. Instead of organizing psychosocial care according to isolated treatment modalities, the present findings support continuity of psychosocial assessment and intervention throughout the cancer trajectory while recognizing the unique psychosocial needs emerging during radiotherapy. Accordingly, the recommendations presented below are informed by current psycho-oncology guidelines and contemporary evidence and are organized around care needs arising within both the broader biopsychosocial transformation process and the radiotherapy-specific psychosocial transformation process.

1. Assessing Psychosocial Continuity Throughout the Cancer Treatment Process

Primary Focus of Care

The primary focus of care should be the continuous assessment of psychosocial needs across successive stages of cancer treatment, the early identification of psychological distress, and the strengthening of individual coping resources. Because the psychosocial impact initiated at diagnosis continues to evolve through the physical, emotional, social, and existential changes associated with

chemotherapy, surgery, and radiotherapy, supportive care should focus not only on patients' current treatment stage but also on the cumulative psychosocial experiences that shape adaptation throughout the cancer journey.

Accordingly, psychosocial assessment should be regarded as an ongoing clinical process that accompanies patients throughout the cancer continuum rather than as a one-time evaluation performed during isolated treatment stages. A longitudinal approach enables healthcare professionals to recognize changing psychosocial needs and provide timely, individualized supportive interventions as patients progress through treatment.

Clinical Implications

Current psycho-oncology guidelines recommend routine psychosocial distress assessment beginning at diagnosis and continuing throughout all phases of cancer care.[35] Similarly, ONS, EONS, and APOS emphasize that psychosocial supportive care should be integrated into routine oncology practice using a holistic, multidisciplinary, and person-centred approach rather than being restricted to periods of evident psychological distress.[36–39]

Accordingly, supportive nursing assessment should extend beyond current symptoms and include evaluation of patients':

- diagnostic experiences and illness perceptions;
- levels of fear, uncertainty, and emotional distress;
- changes in body image, identity, and self-perception;
- social functioning and role performance;
- available coping resources, resilience factors, and social support systems.

Process-oriented supportive care interventions should include structured psychosocial assessment, routine distress screening, individualized information provision, therapeutic communication, facilitation of family involvement, and referral to psychosocial support services whenever appropriate. Such approaches may facilitate early identification of psychosocial needs, strengthen continuity of psychosocial supportive care, promote person-centred care, and support individualized oncology nursing throughout the cancer treatment trajectory.

2. Radiotherapy-Specific Psychosocial Care Priorities

Fear and Uncertainty

Primary Focus of Care

Based on the process-oriented conceptualization emerging from this study, the initial phase of radiotherapy should be regarded as a period during which fear, uncertainty, and informational needs are particularly prominent. Accordingly, the primary focus of supportive care should be to reduce treatment-

related fear and uncertainty, address individual informational needs, and prepare patients to enter radiotherapy with greater confidence, predictability, and perceived control. Misconceptions regarding radiotherapy, uncertainty about treatment procedures, and concerns about potential side effects may substantially contribute to psychological distress during this period.

Because fear and uncertainty are dynamic rather than static experiences, supportive interventions should be continuously adapted to patients' changing informational, emotional, and psychosocial needs throughout radiotherapy rather than being limited to treatment initiation alone.

Clinical Implications

The NCCN Distress Management Guidelines and recommendations from ONS and APOS emphasize early identification of treatment-related fear, anxiety, distress, and informational needs.[35][36][39] Furthermore, structured educational programmes, individualized information provision, nurse-led supportive interventions, and therapeutic communication have been shown to reduce fear and uncertainty associated with radiotherapy while improving patients' confidence and engagement with treatment.[5][6]

Accordingly, supportive nursing care should include:

- routine psychosocial distress assessment;
- identification of individual informational needs;
- clear explanation of radiotherapy procedures and expected side effects;
- familiarization with the treatment environment;
- encouragement of emotional expression through therapeutic communication;
- development of trusting therapeutic relationships throughout treatment.

Particular attention should be directed toward reducing anxiety during the first treatment sessions and promoting patients' perceptions of radiotherapy as a predictable, understandable, and manageable component of the broader cancer treatment journey rather than as an isolated or threatening medical procedure.

Adaptation

Primary Focus of Care

The findings of this study suggest that adaptation represents more than increasing familiarity with treatment. Rather, it reflects an active psychosocial adjustment process through which women progressively regain confidence, restore their sense of control, and reorganize their daily lives while integrating successive treatment experiences. Accordingly, supportive nursing care should facilitate this evolving adaptation process by strengthening patients' coping capacities, promoting self-management,

and responding to their changing psychosocial needs throughout radiotherapy rather than focusing exclusively on symptom management.

Clinical Implications

Contemporary psycho-oncology guidelines recommend continuous assessment of both physical and psychosocial symptoms throughout radiotherapy while promoting patients' self-management and active participation in care.[36–38] Similarly, ONS supportive care recommendations emphasize that symptom management should be integrated with psychosocial assessment because physical symptoms and psychological adaptation are closely interconnected.[36–38]

Previous literature further indicates that trust-based relationships with healthcare professionals, effective symptom management, therapeutic communication, and individualized supportive care facilitate successful adaptation during radiotherapy.[7] These findings suggest that adaptation should be understood as a dynamic process requiring continuous supportive care that evolves alongside patients' changing physical and psychosocial experiences.

Accordingly, process-oriented supportive nursing care should include:

- regular assessment of physical and psychosocial symptoms;
- promotion of self-care and self-management strategies;
- maintenance of privacy-sensitive and person-centred care;
- strengthening trust-based therapeutic relationships with healthcare professionals;
- encouraging patients' active participation in treatment and decision-making.

Supporting adaptation throughout radiotherapy may contribute not only to reducing symptom burden but also to strengthening patients' confidence, self-efficacy, sense of control, and long-term psychosocial adjustment.

Meaning-Making

Primary Focus of Care

One of the most distinctive findings of this study was that many women progressively reconstructed the meaning they attributed to radiotherapy, transforming an initially threatening treatment into an experience associated with hope, healing, continuity, and personal growth. Accordingly, supportive care should extend beyond reducing psychological distress and actively facilitate patients' meaning-making processes as an integral component of psychosocial adaptation throughout treatment.

Clinical Implications

Contemporary psycho-oncology approaches increasingly emphasize that supportive care should not focus solely on distress reduction but should also facilitate patients' efforts to understand, interpret, and

integrate illness experiences into their broader life narratives.[16][17][40] Meaning-centred supportive care, narrative-based interventions, reflective communication, and existential support may help individuals reconstruct hope, preserve personal identity, and maintain psychological well-being while adapting to cancer. Likewise, the EONS person-centred care framework recommends integrating patients' personal values, life priorities, cultural backgrounds, and individual meaning systems into routine oncology care.[39]

Accordingly, process-oriented supportive nursing care should include:

- creating opportunities for patients to express emotions, concerns, and personal experiences;
- facilitating reflective and meaning-focused therapeutic conversations;
- supporting exploration of personal values, life priorities, and future goals;
- routinely assessing spiritual and existential concerns;
- using communication strategies that promote hope, psychological well-being, and meaning reconstruction.

Facilitating meaning-making throughout radiotherapy may contribute not only to reducing psychological distress but also to strengthening psychosocial adaptation, sustaining hope, fostering resilience, and, for some individuals, promoting psychological strengthening and post-treatment growth.

Reintegration

Primary Focus of Care

The present findings indicate that reintegration begins during radiotherapy rather than only after treatment completion. Rather than representing a distinct post-treatment phase, reintegration emerged as a gradual psychosocial process through which women progressively reconstructed their daily routines, family roles, social participation, and future expectations while treatment was still ongoing. Accordingly, **process-oriented supportive care** should facilitate this gradual transition by helping patients rebuild confidence in everyday life, restore valued social roles, and prepare for survivorship throughout the later stages of radiotherapy.

Because reintegration develops alongside psychosocial adaptation rather than after its completion, supportive care should address not only patients' physical recovery but also their emotional, social, and existential adjustment as they begin to redefine life beyond active cancer treatment.

Clinical Implications

Current survivorship and supportive care guidelines emphasize that care following active treatment should extend beyond medical follow-up to include psychosocial adaptation, quality of life, social functioning, role restoration, and preparation for survivorship.[36][37] Accordingly, supportive care during the later phases of radiotherapy should proactively prepare patients for reintegration into everyday life while continuing to address their evolving psychosocial needs.

Process-oriented supportive nursing care should therefore include:

- supporting gradual re-engagement in daily activities and routines;
- encouraging restoration of family, occupational, and social roles;
- routinely assessing quality of life and psychosocial functioning;
- strengthening available family and community support resources;
- systematically assessing and addressing fear of cancer recurrence;
- facilitating discussions about future expectations and survivorship planning.

Rather than marking the completion of treatment, reintegration should be understood as an ongoing supportive care process through which women progressively reconstruct their identities, social participation, and future expectations while adapting to life beyond active cancer treatment. Supporting reintegration during radiotherapy may therefore contribute not only to successful survivorship transition but also to sustained psychosocial well-being and long-term quality of life.

Supporting Psychological Strengthening

Primary Focus of Care

An important contribution of this study is the observation that, among some women, psychosocial adaptation progressed beyond adjustment and evolved toward **psychological strengthening**. Rather than representing a universal outcome of radiotherapy, this process appeared to emerge when facilitating psychosocial resources—including social support, spiritual coping, trust in healthcare professionals, cognitive reappraisal, and therapeutic relationships—interacted throughout the cancer treatment journey. **From a supportive care perspective, recognizing patients' strengths alongside their psychosocial needs may facilitate more balanced, person-centred, and resource-oriented oncology care.**

Notably, some participants who initially perceived radiotherapy as a source of fear and threat later described it using metaphors such as *healing light, sunlight, brightness,* and *purification*. These narratives illustrate how radiotherapy gradually became associated with hope, healing, renewed personal meaning, and increased confidence in the future. Rather than reflecting simple symptom reduction, these experiences suggest that some women actively reconstructed the personal significance of radiotherapy through an ongoing process of psychosocial adaptation and meaning-making.

Clinical Implications

Contemporary psycho-oncology literature suggests that the cancer experience may be associated not only with psychological distress and loss but also with resilience, positive adaptation, psychological strengthening, and post-treatment growth.[33–40] Accordingly, **strengths-based supportive care** approaches seek not only to alleviate distress but also to identify, mobilize, and strengthen patients' existing psychological, social, spiritual, and relational resources throughout the cancer journey. The

present findings support this perspective by demonstrating that psychological strengthening may emerge when supportive resources are continuously reinforced across different phases of treatment.

Accordingly, **process-oriented supportive nursing care** should include:

- assessing personal strengths, resilience, and coping abilities;
- strengthening family, social, and community support systems;
- supporting spiritual resources and existential well-being when appropriate;
- promoting hope, self-efficacy, and confidence in coping with future challenges;
- facilitating opportunities for meaning-making and reflective therapeutic communication;
- monitoring long-term psychological well-being throughout survivorship.

Importantly, psychological strengthening should not be regarded as an expected outcome for every patient but rather as a **potential outcome** that may emerge when supportive care effectively enhances patients' existing psychosocial resources. Consequently, supportive care should aim not only to reduce psychological distress but also to create opportunities for resilience, positive adaptation, and personal growth whenever these processes naturally develop.

Collectively, these recommendations translate the process-oriented conceptualization emerging from the present study into clinically applicable supportive care practice. Rather than organizing psychosocial care around isolated treatment modalities, the proposed framework emphasizes **continuity of psychosocial assessment, individualized supportive care, therapeutic communication, and person-centred interventions** across the entire cancer treatment journey while recognizing the distinctive psychosocial role of radiotherapy. By integrating international psycho-oncology guidelines with patients' lived experiences, this framework offers a practical model for delivering **longitudinal process-oriented supportive care** in oncology settings. By integrating international psycho-oncology guidelines with patients' lived experiences, this framework offers a practical model for delivering longitudinal process-oriented supportive care in oncology settings. The process-oriented supportive care recommendations derived from this framework are presented in Table 5.

Table 5. Process-Oriented Supportive Care Recommendations Derived from the Psychosocial Transformation Framework[36,37,38,39,40]

Process Domain	Psychosocial Characteristics	Primary Supportive Care Focus	Evidence- and Guideline-Informed Supportive Care Recommendations
Psychosocial Continuity Across the Cancer Journey	Diagnosis-related fear and uncertainty, body image changes, emotional and social losses, evolving psychosocial distress	Maintaining continuity of psychosocial assessment and supportive care throughout the cancer trajectory	Routine psychosocial assessment, distress screening, individualized information provision, therapeutic communication, assessment of illness perceptions, coping resources, family support, and referral to psychosocial services in accordance with NCCN, ONS, EONS, and APOS recommendations.
Fear and Uncertainty	Treatment-related anxiety, uncertainty, informational needs, concerns regarding treatment outcomes	Reducing uncertainty and strengthening patients' sense of predictability and emotional security	Individualized education, identification of informational needs, explanation of radiotherapy procedures, familiarization with the treatment environment, therapeutic communication, and routine distress assessment in accordance with NCCN and ONS recommendations.
Adaptation	Progressive adjustment to treatment, symptom burden, restoration of perceived control, increasing familiarity with radiotherapy	Facilitating psychosocial adaptation and strengthening self-management abilities	Continuous assessment of physical and psychosocial symptoms, symptom management, promotion of self-care, privacy-sensitive care, strengthening therapeutic relationships, and encouragement of active participation in treatment.
Meaning-Making	Cognitive reframing, hope, spiritual coping, reconstruction of illness meaning, existential adaptation	Supporting meaning reconstruction and existential well-being	Meaning-centred communication, reflective therapeutic conversations, assessment of spiritual and existential needs, exploration of personal values and life priorities, and hope-focused supportive care based on APOS, EONS, and ONS recommendations.
Reintegration	Return to daily life, restoration of family and social roles, reconstruction of future expectations, fear of cancer recurrence	Facilitating psychosocial reintegration and preparation for survivorship	Assessment of quality of life and psychosocial functioning, restoration of social participation, strengthening family and community support resources, survivorship preparation, and management of fear of recurrence in accordance with NCCN Survivorship, ONS, and EONS recommendations.

Psychological Strengthening	Resilience, self-efficacy, positive meaning reconstruction, psychological strengthening, personal growth	Strengthening existing psychosocial resources and promoting long-term psychological well-being	Strengths-based assessment, reinforcement of cognitive coping strategies, strengthening social support and spiritual resources, promotion of hope and self-efficacy, facilitation of meaning-making, and longitudinal monitoring of psychosocial well-being.

Limitations and Strengths

This study has several limitations. First, the research was conducted at a single center with a relatively small sample (N = 27), which may limit the transferability of the findings to other clinical settings. Second, participants shared relatively similar sociocultural backgrounds, potentially limiting the applicability of the findings across different cultural contexts and healthcare systems. Third, the findings were derived from participants' self-reported experiences and therefore reflect subjective interpretations of the radiotherapy process rather than objective measures of psychosocial outcomes. Finally, as with all qualitative studies, the aim was to obtain an in-depth understanding of participants' lived experiences rather than to generate statistically generalizable findings.

Despite these limitations, the study has several important strengths. Rather than examining radiotherapy as an isolated treatment experience, it provides a broader conceptual understanding of psychosocial adaptation across the entire cancer treatment journey. By integrating participants' lived experiences with contemporary psycho-oncology theories and international supportive care recommendations, the study offers a process-oriented perspective that extends existing qualitative knowledge of radiotherapy. Specifically, the study:

- provides a holistic and multidimensional understanding of women's psychosocial experiences during radiotherapy;
- conceptualizes psychosocial adaptation as a cumulative biopsychosocial transformation beginning at diagnosis and evolving throughout the cancer treatment trajectory;
- identifies radiotherapy as a distinct psychosocial transformation process embedded within this broader cancer journey;
- demonstrates how psychosocial adaptation evolves through dynamic interactions among emotional, cognitive, social, spiritual, and relational experiences;
- employs a rigorous qualitative methodology supported by reflexive analysis and established trustworthiness criteria;
- translates the conceptual findings into **process-oriented supportive care recommendations** informed by contemporary psycho-oncology guidelines and evidence-based oncology nursing practice.

Collectively, these strengths extend current qualitative understanding of radiotherapy by integrating patients' lived experiences into a coherent process-oriented framework. More importantly, the proposed framework provides a clinically applicable perspective for organizing **longitudinal psychosocial supportive care** that is responsive to patients' evolving needs across successive phases of cancer treatment. This framework may inform future psycho-oncology research, theory development, supportive care implementation, and oncology nursing practice.

CONCLUSION

This study extends current qualitative understanding by demonstrating that the psychosocial experiences of women undergoing radiotherapy for breast cancer are best understood as part of a continuous biopsychosocial transformation rather than as isolated reactions to a single treatment modality. Participants' narratives indicated that psychosocial adaptation begins at diagnosis, evolves through successive treatment experiences, and continues throughout the broader cancer treatment journey.

Within this broader trajectory, radiotherapy emerged as a distinct psychosocial transformation process characterized by progressive movement from fear and uncertainty toward adaptation, meaning-making, reintegration, and, for some women, psychological strengthening. Importantly, these experiences were shaped not only by treatment-related events but also by the dynamic interaction of cognitive reappraisal, social support, spiritual coping, therapeutic relationships, and evolving illness meanings.

By integrating these findings, the present study proposes a **process-oriented conceptual framework** for understanding psychosocial adaptation during breast cancer treatment. This framework highlights both the continuity of psychosocial transformation across the cancer journey and the distinctive psychosocial role of radiotherapy within that broader process, thereby extending existing qualitative literature beyond treatment-stage descriptions toward a more integrated understanding of patients' lived experiences.

From a clinical perspective, the findings support a **process-oriented approach to supportive care** that emphasizes continuity of psychosocial assessment and intervention throughout the cancer trajectory rather than restricting psychosocial care to individual treatment modalities. The proposed framework may assist oncology nurses and multidisciplinary oncology teams in delivering individualized, longitudinal, and person-centred supportive care that is responsive to patients' changing psychosocial, social, spiritual, and existential needs across successive phases of treatment. Furthermore, the framework offers a clinically applicable perspective for organizing psychosocial supportive care that integrates evidence-based psycho-oncology recommendations with patients' lived experiences.

Future qualitative, longitudinal, and theory-informed studies are warranted to examine the transferability, refinement, and broader applicability of the proposed process-oriented psychosocial transformation framework across different cultural settings, healthcare systems, treatment contexts, and cancer populations. In addition, future implementation research should evaluate how this framework can be

incorporated into routine supportive care practice and whether its application improves psychosocial adaptation and patient-reported outcomes throughout the cancer continuum.

Declarations

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Ethical Approval

Ethical approval for this study was obtained from the **Bingöl University Scientific Research and Publication Ethics Committee** (Approval Date: 29 November 2024; Approval No.: 2024/214).

Informed Consent

Written informed consent was obtained from all participants prior to their inclusion in the study.

Data Availability Statement

The datasets generated and/or analyzed during the current study are not publicly available because they contain identifiable qualitative interview data and participant confidentiality must be protected. De-identified data may be made available by the corresponding author upon reasonable request, subject to approval by the relevant ethics committee.

CRediT Authorship Contribution Statement

Elif Oral: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Visualization, Writing – Original Draft, Writing – Review & Editing, Project Administration.

Serpil Yılmaz: Supervision, Validation, Writing – Review & Editing.

All authors critically reviewed the manuscript, approved the final version of the manuscript, and agree to be accountable for all aspects of the work.

Declaration of Generative AI in Scientific Writing

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) to improve language, grammar, and readability. After using this tool, the authors carefully reviewed, revised, and edited the

manuscript and take full responsibility for the content of the publication.

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Figures

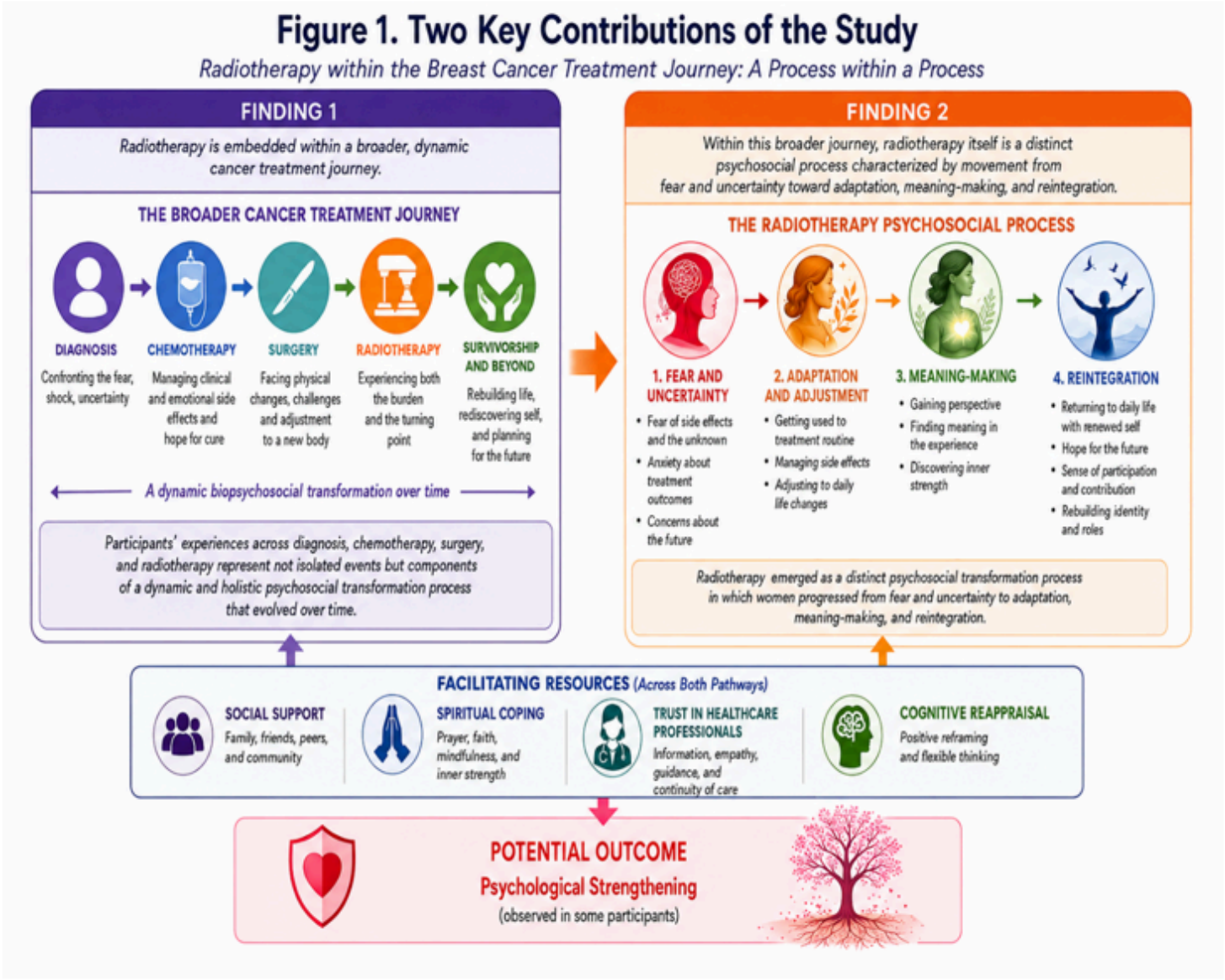


Figure 1

Two Key Contributions of the Study: Radiotherapy Within the Breast Cancer Treatment Journey—A Process Within a Process

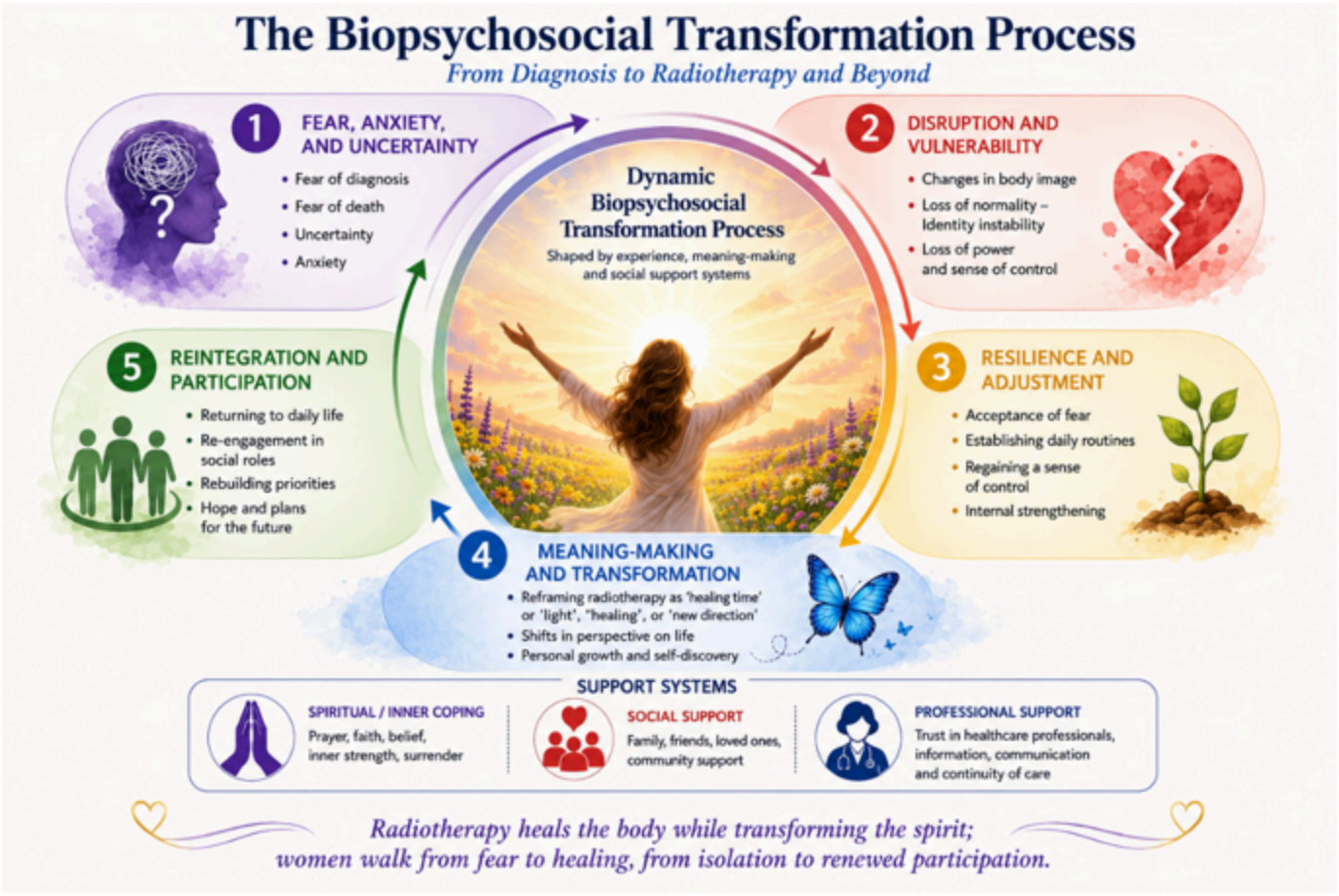


Figure 2

Biopsychosocial Transformation from Diagnosis to Radiotherapy and the Position of Radiotherapy Within the Process



Figure 3

Radiotherapy-Specific Psychosocial Transformation Process, Facilitating Resources, and Potential Outcome

Supplementary Files

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