

Research Article

Listen to Lung Cancer Patients' Emotions With Photographs Taken by Them: A Mixed-Method Study

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Aim: This study was conducted to examine the emotional experiences of lung cancer patients.

Methods: This study, carried out with an intervention design, is a mixed-method study in two parts. The qualitative part of the mixed method was enriched with photovoice methodology. The study used a criterion sampling technique, and 17 participants were interviewed. Some scales collected quantitative data from the survey, and qualitative data were collected through “semi-structured interviews” and “photographs.”

Results: The themes in the first part are “meeting with cancer and a new life.” The second part determines the “range of emotions, the world through my window, and perspective.” The study revealed in striking detail that lung cancer patients experience many different emotions simultaneously. There was no significant difference in the scale mean scores of the participants.

Conclusion: Phototherapy is essential for revealing lung cancer patients' emotions and concentrating on positive emotions. Cancer nurses can also add phototherapy as a simple, feasible, and accessible method of caring for lung cancer patients. Thus, lung cancer patients can participate in life through the photographs they take.

Keywords: cancer; emotions; lung cancer; photography therapy; photovoice

Key Points

- Lung cancer stands apart not only for its devastating mortality rates and societal impact but also for the unique emotional scars it leaves. Beyond physical suffering, patients grapple with overwhelming feelings of guilt, isolation, shame, and paralyzing fear of suffocation and death—emotions deeply tied to stigmatized behaviors like smoking and alcohol use. These psychological burdens demand urgent attention as they amplify the complex challenges patients and their families face.
- This study breaks from conventional approaches, employing photovoice methodology to revolutionize how we understand lung cancer patients' experiences. This research dives deeply into their lives' raw,

unfiltered realities by empowering patients to narrate their journeys through vivid imagery and personal storytelling. The result is a profoundly holistic and humanized perspective, illuminating nuances that traditional methods often fail to capture.

- The study's findings serve as a wake-up call for modern nursing. They reveal a critical gap in current practices and underscore the dire need for a paradigm shift—one that integrates targeted interventions for emotional distress and builds comprehensive, inclusive support systems for both patients and nurses. This research not only redefines holistic care but also demands immediate, actionable change to prioritize the emotional and psychological resilience of lung cancer patients.

1. Introduction

Lung cancer patients experience a broad spectrum of emotional challenges. This disease, heavily associated with “guilt” and “death,” initiates a physical and emotional battle, often resulting in stigma. From the moment of diagnosis, patients encounter a crisis period marked by physical, psychosocial, and spiritual struggles, such as pain, nausea, burnout, fatigue, isolation, and rebellion [1–4]. While existing studies focus on these patients’ physical, psychological, social, and spiritual needs, research explicitly addressing their positive and negative emotions remains limited [5–7]. Enhancing patients’ psychosocial well-being has improved physical symptoms and overall quality of life [8].

Current research demonstrates the potential of art therapy to help reduce physical symptoms and improve well-being in a variety of chronic diseases, including cancer, and even during end-of-life care. A systematic review of 18 studies demonstrates how art therapy and art making can help reconstruct, maintain, and transform identity [9]. The ability to recognize, understand, interpret, and express emotions is vital for coping with lung cancer, often described as a relentless adversary. Expressing emotions fosters relief, strengthens resilience, and enables patients to find peace and happiness [10, 11]. Moreover, addressing emotions such as fear of death and grief realistically enhances coping mechanisms [12, 13]. However, unrecognized emotions during the diagnosis, treatment, and care can misdirect energy and attention [14, 15].

Although expressing emotions can be challenging, innovative approaches can facilitate this process. Photograph therapy, one of the art therapy methods, for example, effectively reveals negative and positive emotions by evoking personal memories [5, 16]. Although photography therapy is used by psychologists as a sub-branch of art therapy, in the last decade, it has also been used directly as a methodological qualitative approach, especially under the name of photovoice [17, 18]. Combining quantitative and qualitative tools in mixed-method studies allows for deeper emotional exploration and patient self-awareness [19, 20]. Besides, the photography method has been noted as particularly supportive in exploring sensitive topics, as it adds an extra layer of richness and depth to participants’ verbal responses. Photographs enhance the understanding and representation of participants’ perspectives, allowing for a more comprehensive exploration of their experiences and insights. This research provides a way for a deeper understanding of the emotions of cancer patients, thus shedding light on the necessary support needed to achieve the ideals in their treatment and care. We hope to empower these patients by embracing the journey with all emotions and ultimately enhancing the quality of end-of-life care provided to cancer patients. Therefore, this mixed-method study aims to examine lung cancer patients’ emotional experiences, emphasizing the impact of photograph therapy on emotional expression.

1.1. Research Questions

1. What are the emotions/feelings of lung cancer patients?
2. What is photograph therapy’s effect in expressing lung cancer patients’ emotional experiences?

2. Methods

2.1. Design. This research utilized a mixed-method approach to explore the effect of photograph therapy on the emotional states of lung cancer patients undergoing treatment. Our photovoice methodology aimed to move beyond traditional qualitative methods and allow lung cancer patients to communicate their experiences in more detail and holistically [17]. In addition, the study adhered to the Consolidation Criteria for Reporting Qualitative Research (COREQ) checklist (Supporting Information 1) for reporting purposes [21].

2.2. Setting and Participants. The study population comprised individuals diagnosed with lung cancer and receiving chemotherapy at a university hospital’s Chemotherapy Unit. The purposive “criteria sampling technique” was employed to select 17 participants. Interviews were conducted between February 24, 2020, and November 6, 2021.

2.3. Data Collection. Data collection involved the simultaneous use of qualitative and quantitative methods.

2.4. Introductory Information Form (IIF). This form included 10 questions to determine the patient’s sociodemographic and disease-related characteristics.

2.5. Eastern Cooperative Oncology Group Performance Scale (ECOG-PS). Also known as the World Health Organization and Zubrod score, this tool assessed disease progression and its impact on daily life [22].

2.6. Berkeley Expressivity Questionnaire (BEQ). Developed by Gross and John and validated for Turkish use by Akan and Barışkın, this questionnaire evaluates emotional expressivity [23, 24].

2.7. Profile of Mood States Scale (POMS). Originally designed by McNair, Lorr, and Droppleman and adapted for Turkish by Selvi et al., this scale assesses the short-term mood changes [25, 26].

2.8. Photograph Therapy (Photovoice Methodology). This art therapy-based practice encourages patients to express and explore emotions during challenging times [5, 27]. Photographs used in art therapy, also known as phototherapy, are a participatory approach that integrates photography to

amplify the voices of marginalized individuals. They are valuable in qualitative research that seeks to understand the subjective experiences of individuals and offer a more inclusive and participatory approach to data collection and analysis [28]. Photographs can be used in various ways in this method. The most common approach is encouraging participants to take images or photographs representing their experiences, challenges, and strengths. These photographs serve as visual data that allow participants to express themselves nonverbally. It has also been noted that this method is remarkably supportive in researching sensitive topics such as cancer, as it adds an extra layer of richness and depth to participants' verbal responses [17, 18].

2.9. Semistructured Interview Forms (SSIFs). These forms consisted of two parts:

Part 1: Open-ended questions evaluated patients' experiences and feelings about their cancer journey.

1. How did you first find out that you have cancer?
2. How did you feel when you first learned that you had cancer? (What did you experience? What did you do?)
3. What kinds of changes (work, family relations, social life, financial life, etc.) happened in your life after you learned that you had cancer?
4. How did your treatment process begin? (choice of physician, treatment decision, time of initiation, etc.)?
5. What are your feelings about the treatment you received?
6. Can you share your current feelings/feelings?
7. What do you want to do after your treatment, and what are your expectations for the future?

Part 2: Questions prompted patients to reflect on captured photographs, offering deeper emotional insights.

1. What are your feelings and thoughts about your illness right now?
2. Can you share your feelings and thoughts about your current treatment process?
3. How has taking pictures affected your life (your emotions, feelings, relationships, etc.)?
5. What does it mean to you to take photographs and participate in this study?
6. How did your participation in the study affect your treatment process?
7. After you started to be interested in photography, did your feelings and thoughts about your illness change? How?
8. You chose a photo that best reflects your mood/feeling. Can you tell us your thoughts about this photo?
9. Can you explain how you felt while taking your chosen photo?
10. If there is anything else you would like to express or add, please specify.

2.10. Data Collection Process. The first author conducted all interviews. Participants completed quantitative assessment tools during the initial session and responded to SSIF Part 1. They were then provided with cameras to capture photos reflecting their emotional states. Participants selected one image that best represented their feelings, which was later discussed in SSIF Part 2. Interviews, lasting 45–90 min, were audio-recorded and transcribed for analysis. Data collection ceased upon reaching saturation.

2.11. Data Analysis. Quantitative data were analyzed using the Statistical Package for Social Sciences (SPSS) Version 22, with significance set at $p < 0.05$. Inductive content analysis was applied to qualitative data. The researcher manually coded and analyzed transcripts, identifying themes, sub-themes, and codes. Findings were validated through an independent review by a second researcher. The data supporting this study's findings are available from the corresponding author (AAC), upon reasonable request.

2.12. Ethical Considerations. At the outset, written approvals were obtained from the x University Ethics Committee (Issue: 2019/05-438), the y University Hospital Chief Physician, and the Medical Oncology Chemotherapy Department to conduct the study (Issue: 2019/04- E.5130). Written consent was obtained from the patients participating in the study, and permission was obtained via e-mail from the authors to use the scales, whose validity and reliability were established. The research was carried out within the Declaration of Helsinki.

3. Results

3.1. Sample Characteristics. The mean age of patients was 59.06 ± 8.45 years. The majority of the participants were male patients, and most of them were primary and high school graduates. Almost half of the participants living with their families or only their spouses have used alcohol, and all have a smoking history (Table 1).

In the study, the patient's total emotional expression score was 41.64 ± 7.34 before the first interview and 41.23 ± 8.29 after the second interview; there was no significant difference ($p > 0.05$) (Table 2).

In the study, patients' mood scores were 51.47 ± 33.64 before the first interview and 54.82 ± 30.86 after the second interview. There was no significant difference ($p > 0.05$) (Table 3).

In the study, two themes emerged in the first interview to examine the emotional experiences of lung cancer patients; three themes and twenty subthemes belonging to these themes emerged in the second interview (Table 4).

3.2. Part 1 Main Theme 1. "In the main theme of the meeting with cancer, subthemes such as "symptoms," "silent scream," "The moment heard about cancer for the first," and "faith" emerged.

TABLE 1: Introductory information of the participants.

Introductory information		n (%)
Age	Min–Max (45–83)	
Mean $\pm$ SD (59.0 $\pm$ 68.45)		
Gender	Female	2 (11.8)
	Male	15 (88.2)
Marital status	Married	16 (94.1)
	Single	1 (5.9)
Education level	Literate	1 (5.9)
	Primary school	10 (58.8)
	High school	4 (23.5)
Occupation	University	2 (11.8)
	Self-employed	3 (17.6)
	Retired	14 (82.4)
Income perception	Income < Expense	6 (35.3)
	Income = Expense	6 (35.3)
	Income > Expense	5 (29.4)
Living with	Partner	6 (35.3)
Use alcohol	Family	11 (64.7)
	Never used	9 (52.9)
	Given up	8 (47.1)
Use cigarette	Given up	15 (88.2)
Lung cancer duration	Smoking	2 (11.8)
	< 1 year	13 (76.5)
	1–5 years	4 (23.5)

Note: Min, minimum; Max, maximum.

Abbreviation: SD, standard deviation.

Almost all of the participants experienced a process that started with coughing, and they described that cancer nearly knocked on the door and announced, “I am here,” with these symptoms. One of the participants described the feeling he felt while experiencing the symptom of being unable to breathe as “*feeling lowly*” (P6).

The silent screams reflected the silent inner conversations in the participants’ minds from the moment they got cancer, with the truth being heard in whispers, even from the doctor. “*While my wife talked secretly, I realized something was wrong with me from the whispers there.*” (P1)

The researcher thought that the sudden emotions of the participants when they encountered cancer were as sudden and severe as thunder and spread throughout the body like an electric wave passing through the brain: “*I was devastated.*” (P1)

It was observed that some participants saw other patients and said, “*Every bad has its worst,*” they thanked the creator for not giving worse, and some of them would hold a showdown. “*Oh, God, I was a hard drinker; what is wrong with this child*” (P5)? Some patients believed they would die and gave up everything: “*Everyone will die one day.*” (P7).

3.3. Part 1 Main Theme 2. In the central theme of a new life, subthemes such as “social support,” “life in the hospital,” “treatment process,” “cancer metaphors,” “community approaches,” and “storyboard” emerged.

The participants’ material and moral social support needs increased during the cancer process. Participants said, “I could not work; my biggest supporters were my brothers” (P8). “*spouse’s support was mainly very good for him emotionally,*” expressed. (P16)

While the participants who completed their procedures quickly in the hospital process experienced a deep sense of relief, on the other hand, they found this situation unfair: “*What should other patients do? Life is over now, but you cannot do anything without money. I am angry at the hospital processes.*” (P16)

The participants stated that another process that affects them as much as cancer is the treatment process, and they used the following striking statements: “*It is like drinking poison...*” (P10); “*I felt that the drug was traveling through my body...*” (P2) Another participant said he feels like a prisoner in the chemotherapy unit and handcuffs on his arm. (P6)

Participants expressed intense emotions that the word “cancer” made them feel with metaphors: “*I felt like you put ice under the sun, and after 15 minutes, it would melt into the ground*” (P1), “*I started to melt just like a candle melts. I felt like I was melting*” (P2), “*Shudder when you hear the name snake. So is cancer.*” (P5) Participants felt embraced or stigmatized by other people’s pity, compassion, and blame for cancer responses: “*Others say that if you did not drink, you would not have cancer*” (P5), “*They say for alopecia ‘hello, my fellow soldier’.*” (P13)

The participants considered their experiences from the past to the present. While some stated that they did not care for their bodies during this process, others thought that they had to care for their children or grandchildren and wanted to live with them more.

3.4. Part 2 Main Theme 1. The subthemes of “perceiving symptoms” and “emotions” emerged as the central theme of the emotion variations.

For most participants, the world they viewed through the camera’s viewfinder offered them a new way of perceiving: “*When I look back at the time of first diagnosis, I think it was very pessimistic. However, now, I feel peaceful and safe*” (P2) (Figure 1).

Patients who frequently talk about good feelings such as “pleasure, joy, happiness, freedom of mind” when they take a photo clearly stated that the interviews made them feel good: “*I also started to think about myself; after photos.*” (P8) Participants could caress their positive emotions and embrace their negative feelings with compassion. Thus, a colorful spectrum of emotions emerged. While looking at the photograph, the participant said, “*sea, skyline, mountains, and sky all in one; just like between birth, life, and death. If you had not given me this machine, I would not have been able to see these beauties*” (P3) (Figure 2).

3.5. Part 2 Main Theme 2. In the second interview after the photo shoot, it was observed that the participants’ motivation in combating the disease was strengthened. In the

TABLE 2: Berkeley Expressivity Questionnaire subdimension and total score averages of lung cancer patients before and after photograph therapy.

	Before phototherapy	After phototherapy	r^*	%95 CI (difference)	Statistical test	p
Emotion expression	20.29 ± 3.90	20.64 ± 4.89	0.411	-2.84-2.13 (-0.35)	0.300 ^a	0.768
Impulse strength	15.35 ± 4.37	13.29 ± 3.98	0.417	-0.26-4.38 (2.05)	1.878 ^a	0.079
Masking	6.00 ± 2.29	7.29 ± 2.08	0.314	-2.61-0.02 (-1.29)	2.078 ^a	0.054
BEQ** Total Score	41.64 ± 7.34	41.23 ± 8.29	0.593	-3.24-4.07 (0.41)	0.239 ^a	0.814

Abbreviation: CI, Confidence Interval.

^aPaired samples t test.

**Berkeley Expressivity Questionnaire.

* $p > 0.05$ nonsense correlation.

central theme of the world through my window, subthemes of “bridge,” “framing,” “photo metaphors,” “chain of immortality,” and “journey to memories” emerged.

The interviews and photo shoots connected negative and positive emotions like a bridge. The patients mentioned that the beauties they went to see made them feel good during the shoot, and the sunny weather they shot made them happy. “When spring comes into my village, I feel relieved, as if I took off my dirty clothes and put on clean clothes” (P1) (Figure 4).

“I enjoyed it, I liked this photo is the photo of my dreams come true” (P4) (Figure 5).

They frequently mentioned that taking photos is a hobby and distracting. The participants said they escaped the disease as they shot: “Taking photos is beautiful. Flowers are gorgeous; they relax the soul. Look at the colors; each is beautiful; it relaxes and makes me think. This photo gives peace to me; an artist made it and represents my family” (P14) (Figure 6).

Participants thought of healing at this stage: “Now I feel like winter and as if I will be healed when spring comes. It is like the arrival of spring, the hit of the sun, and healing” (P1), “When I took the camera and went to shoot, it was as if the streets I knew became those of a city I did not know; a tourist’s feet were taking a stroll happily to discover a new city.” (P8) Participants accepted that death would eventually come and find them and took the coldness of death and warmed it: “I thought left a memory behind me because I had taken this photo” (P1), “It will be registered. My name and my words will be written. Whose words are written?” (P9).

They looked at the photograph and saw the beauty of life and childhood and youth memories while nature, the sea, greenery, village, and beautiful landscapes were in the photographs of most participants. “This house where I was born. My children have grown up there; I like theirs’ joking with their grandfather very much” (P16) (Figure 7).

3.6. Part 2 Main Theme 3. Almost all participants’ perspectives on life changed positively between the two interviews. In the perspective theme, subthemes “cancer,” “mirror,” and “future and expectations” emerged.

Most participants took it as their duty to give hopeful messages to other cancer patients as if they were writing an undated letter to be read when the day came. Some

participants feel grateful by thinking that they are fine. “There are people who cannot get out of bed. Why should I be gloomy if I do not have shortness of breath?” (P11).

Participants looked at themselves in the mirror once more, developed self-awareness by exploring the hidden world within them, and brought their positive emotions to light by digging like treasure hunters. These individuals, labeled as having to step aside from themselves and wait for death in their beds, were re-acquainted with feelings such as achieving something or creating a beautiful work: “If the photo I took is put somewhere, I would be proud of myself and happy” (P15) (Figure 8).

In this section, which is one of the most promising subthemes of the study, it is seen that cancer patients, who are socially associated with death, look to the future with hope, and have colorful dreams: “I started the kemancha course because it was my dream; I wanted to realize it” (P16). “When I look at this photo, I feel hope, peaceful, and will be fine” (P7) (Figure 9).

4. Discussion

The diagnosis of cancer strikes like a bomb in the middle of life. In a study on lung cancer patients, participants described their diagnosis as “incredible, shocking, unfair, and unacceptable” [8]. Similarly, Georgievski et al. [29] found that cancer patients viewed photograph therapy as a tool that allowed them to find new meanings in their cancer experiences and empowered them to express their needs. The literature emphasizes that focusing on positive thoughts changes how patients perceive their current situations, activating new coping mechanisms [6, 7, 12]. In the current study, participants reported that photograph therapy sessions and interviews provided relief by enabling them to express a wide range of positive and negative emotions. This suggests that photograph therapy can encourage lung cancer patients to articulate their feelings effectively.

Physical symptoms are known to negatively impact the mental state, enjoyment of life, and interpersonal relationships of lung cancer patients [30]. However, the findings of this study indicate that while physical symptoms persisted, participants found it easier to cope with them when they focused on emotions like “self-confidence,” “success,” and

TABLE 3: Profile of Mood States Scale subdimensions and total scores of lung cancer patients before and after phototherapy therapy.

	Before phototherapy			After phototherapy			<i>r</i> [*]	%95 CI (difference)	Statistical test	<i>p</i>
	Mean ± SD	Median (Q1–Q3)		Mean ± SD	Median (Q1–Q3)					
Depression–dejection	13.47 ± 14.31	9 (5–14)		11.94 ± 11.97	6 (4.50–15)		0.604	–4.58; 7.64 (1.53)	0.597 ^a	0.551
Tension–anxiety	15.00 ± 6.05	12 (10.50–19)		14.70 ± 6.00	15 (10–19.50)		0.662	–2.26; 2.84 (0.29)	0.286 ^a	0.775
Anger–hostility	9.64 ± 7.29	7 (3–15)		11.47 ± 7.18	13 (5–17.50)		0.598	–5.16; 1.51 (–1.82)	1.158 ^b	0.264
Confusion–bewilderment	6.05 ± 4.80	5 (2–10)		7.52 ± 5.06	7 (5–11.50)		0.721	–3.37; 0.43 (–1.47)	1.642 ^b	0.120
Fatigue–inertia	7.29 ± 5.77	7 (2–11.50)		9.17 ± 5.92	7 (4.50–14.50)		0.741	–4.05; 0.28 (–1.88)	1.632 ^a	0.126
Vigor–activity	19.70 ± 3.29	20 (16.50–23)		17.58 ± 4.95	19 (15–21)		0.414	–0.29; 4.52 (2.12)	1.867 ^b	0.080
POMS ^{**} total score	51.47 ± 33.64	41 (29.50–62.50)		54.82 ± 30.86	47 (29.50–73.50)		0.736	–15.47; 8.77 (–3.35)	1.009 ^a	0.313

Note: Q1–Q3, interquartile range.
Abbreviations: SD, standard deviation; CI, confidence interval.
^aWilcoxon.
^bPaired.
^{*}*p* > 0.05 nonsense correlation.
^{**}Profile of Mood States Scale.

TABLE 4: List of themes, subthemes, and codes belonging to before and after photograph therapy for examining the mood of lung cancer patients in the study.

Before phototherapy (part 1)		Subthemes
Mean themes	Meeting with cancer	Symptoms
		Silent screams
		The moment heard about cancer for the first
	A new Lifeact	Faith
		Social support
	After phototherapy (Part 2)	Life in the hospital
		Treatment process
		Cancer metaphors
		Community approaches
		Storyboard
Mean themes	Range of emotions	Subthemes
		Perceiving symptoms
		Emotions
		Bridge
		Frame
	The world through my window	Photo metaphors
		The chain of immortality
		Journey to memories
		Cancer fellowship
		Mirror
	Perspective	Future and expectations



FIGURE 1: Photograph taken by Participant 2.

“being cared for.” Additionally, walking outdoors and engaging in photography during the study may have contributed positively to symptom management.

Cancer introduces individuals to a transformative journey, altering every dimension of their lives [29]. Support systems are vital during this transition [8, 31]. In the early stages of this study, participants highlighted the feelings of “uselessness” and expressed a heightened need for socialization and family support. However, through photograph

therapy, participants shifted their focus to their intrinsic strengths and potential. Consistent with Yeung et al.’s (2022) findings, participants reported that engaging in photography helped them reframe their perspectives and reduce feelings of isolation [12].

This study revealed that photograph therapy facilitated emotional expression and uncovered patients’ hidden resilience and self-awareness. Participants expressed emotions such as “excitement,” “empowerment,” and “self-



FIGURE 2: Photograph taken by Participant 3 another participant asked himself, like a rainbow, “How many colors do we have?” (P13) (Figure 3).



FIGURE 3: Photograph taken by Participant 13.

confidence” after engaging in photograph therapy, aligning with previous research highlighting the therapeutic effects of focusing on positive perspectives [5, 7]. Metaphors were frequently employed to describe complex emotions. For example, following photograph therapy, participants often used hopeful metaphors such as “rebirth” and “spring’s arrival” to express their transformed outlooks. In line with the reviewer’s observation, findings are now interpreted as associations rather than direct causal claims. We explicitly

acknowledge that contextual influences—such as interaction with interviewers, leaving the hospital environment, and exposure to novel surroundings—may have contributed to patients’ emotional changes. At the same time, recent systematic evidence demonstrates that the benefits of arts-based interventions extend beyond such contextual factors. For example, a meta-analysis with 1113 cancer patients confirmed significant reductions in anxiety and depression and improvements in the physical dimension of quality of life



FIGURE 4: Photograph taken by Participant 1.



FIGURE 5: Photograph taken by Participant 4.

[32]. Likewise, another systematic review and meta-analysis synthesizing 25 studies with 1489 participants reported improvements in social well-being and emotional expression, indicating intervention-specific pathways not entirely attributable to environmental novelty [33]. Moreover, narrative and visual approaches—including therapeutic photography—have been shown to facilitate the externalization of inner experiences, foster self-distancing, and support identity reconstruction, which serve as unique

mechanisms of change [34–37]. Accordingly, the discussion emphasizes both the contextual contributions and the intervention-specific processes consistently supported in the literature, thereby strengthening the specificity and rigor of our conclusions. A limitation of the present study is that it assessed only immediate postintervention outcomes and did not include a longitudinal follow-up. Systematic syntheses indicate that arts-based interventions consistently yield short-term improvements in psychological distress and



FIGURE 6: Photograph taken by Participant 14.



FIGURE 7: Photograph taken by Participant 16.

quality of life in oncology populations, whereas the long-term sustainability of these benefits remains less clear due to limited follow-up assessments [32, 33]. Qualitative photo-voice and photo-art studies, however, report participants' accounts of enduring meaning-making and identity transformation, suggesting a plausible pathway for longer-term benefit that warrants formal longitudinal investigation [37, 38]. The findings of this study align with evidence from other creative arts interventions that have consistently demonstrated benefits in oncology populations. For example, music therapy has been shown in meta-analyses to

significantly reduce anxiety, depression, fatigue, and pain, while improving sleep quality and overall quality of life among patients with lung and breast cancer [39, 40]. Similarly, randomized trials of clay therapy report improvements in the quality of life and self-esteem in pediatric oncology patients [41]. While these modalities share standard therapeutic mechanisms in alleviating distress and enhancing coping, therapeutic photography uniquely fosters the externalization of inner experiences, self-distancing, and narrative reconstruction. Notably, no study to date has directly compared these creative arts modalities within

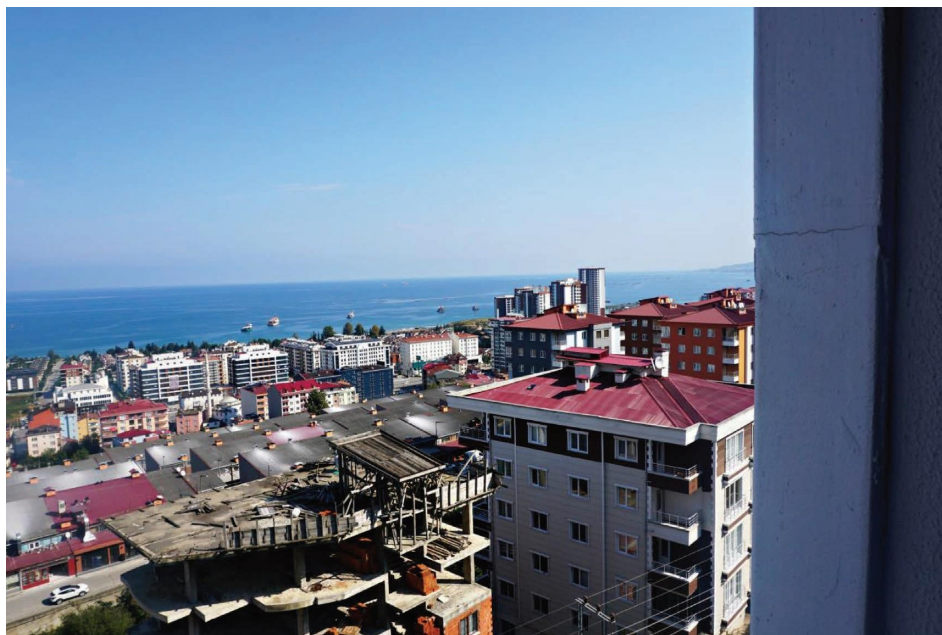


FIGURE 8: Photograph taken by Participant 15.

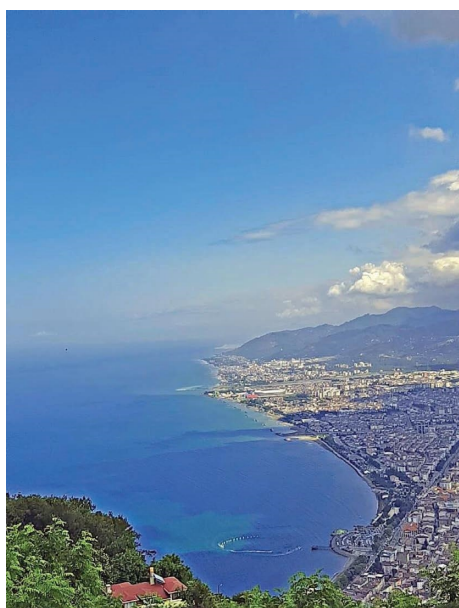


FIGURE 9: Photograph taken by Participant 7.

oncology, representing a significant gap and highlighting the need for future comparative research.

The challenges and fears associated with cancer diagnosis and treatment are overwhelming [42]. This study demonstrates that photograph therapy rekindled positive emotions, even in the face of death. Some participants viewed photography as a way to leave a legacy: *“This photo will remain after me; it is my memory”* (P9). This reflects the intrinsic human desire for immortality, as noted by Piyadeoğlu [43]: *“The more real death becomes, the greater the yearning for immortality.”*

Participants also noted the stigma associated with lung cancer, particularly about smoking history. One participant

expressed intense guilt and anger over their history of smoking and alcohol use. Moreover, societal reactions to visible symptoms like alopecia highlighted the pervasive stigma. Photograph therapy provided a medium for participants to navigate these stigmas and communicate their unique experiences with peers who shared similar journeys, as Capewell et al. [5] supported. This study further revealed participants’ desire to inspire hope and resilience in others, demonstrating the collective power of shared experiences. In interpreting these findings, it is essential to acknowledge that the present study was not designed to establish generalizability across populations. Nevertheless, the psychosocial dynamics identified—particularly guilt, shame, and self-pity—are consistent with previous evidence on cancer-related stigma. For example, lung cancer patients often report heightened guilt and social blame because of the strong behavioral attribution to smoking [1, 3], while women with breast cancer describe experiences of pity and social withdrawal linked to treatment-related bodily changes [44]. Systematic reviews further confirm that stigma is a cross-cutting determinant of distress, delayed help-seeking, and impaired quality of life across oncology populations [45]. In addition, emerging qualitative studies suggest that meaning-making and identity reconstruction processes observed in therapeutic photography also resonate in adolescents confronting cancer [38]. Taken together, these convergences support the conceptual transferability of the mechanisms described here, while underscoring that empirical research is still required to determine their applicability across diagnostic and sociocultural contexts.

Although validated quantitative instruments (ECOG-PS, BEQ, and POMS) were administered, they did not reveal statistically significant changes. This limitation may be related to the short duration of the intervention, the relatively small sample size, and the limited sensitivity of these scales

in detecting subtle, short-term psychosocial improvements among patients with oncology. Such challenges have been documented in prior oncology art therapy research, where standardized measures frequently failed to capture nuanced emotional shifts [17]. Complementing these limitations, the qualitative component of this study provided rich evidence of meaningful therapeutic processes—such as emotional expression, self-distancing, and identity reconstruction—supported by methodological rigor through member checking, independent co-coding, reflexive memoing, and thick description. Consistent with recent reports [37, 38], these findings demonstrate that qualitative inquiry can capture clinically relevant psychosocial changes that remain undetected by quantitative scales, underscoring the value of combining methodological approaches. Although validated scales (ECOG-PS, BEQ, and POMS) were administered, they did not produce statistically significant changes, which may be attributable to the small cohort, the short intervention duration, and the limited sensitivity of these instruments to capture subtle psychosocial shifts. In this context, the quantitative measures were used primarily to support and contextualize the qualitative findings, rather than to serve as definitive evidence of effect.

4.1. Limitations. The study data were obtained from patients treated in a single hospital, making them difficult to generalize. Another significant limitation of the study is that the data collection occurred during the COVID-19 pandemic. The small sample size represents a limitation of this study, as it constrains statistical power and restricts generalizability. However, this aligns with previous photovoice and arts-based oncology studies, which have frequently relied on comparably modest cohorts—for instance, studies with 17 pediatric and adolescent survivors [46], teen siblings of children with cancer [47], 14 participants in lung cancer screening imagery research [20], and 12 young adult cancer survivors in an online photovoice group [48]. In line with Creswell's guidance that qualitative data saturation is generally achieved with 8–13 participants [28], the present analysis reached saturation, thereby strengthening the validity of the qualitative findings.

4.2. Implications for Nursing Practice. This study provides an overview of lung cancer patients' emotional experiences during their cancer journey. Its findings can help us better understand lung cancer patients, identify their emotional needs, and develop interventions based on their experiences to empower them. This approach, which can be easily integrated into nursing care, allows nurses to actively involve patients themselves and create a roadmap for their care.

5. Conclusion

This study contributed significantly to understanding lung cancer patients' emotional experiences. Photography can be a good tool, other than words, to convey the intense emotions experienced by the patients during this process. The study found that negative emotions were at the forefront

before the photograph therapy, and positive emotions were felt more after the photograph therapy. Besides preparing the environment for the transfer of emotions in patients, photograph therapy also prepares the ground for gaining occupation for the patients. In addition, socialization and physical mobility during the shootings were secondary achievements of photograph therapy. One of the most striking results of the study is the warm confrontation with the coldness of death, with the thought that they left a piece of themselves behind. However, as the present study was designed as a short-term intervention, the observed changes should be interpreted as immediate outcomes. Further research with extended follow-up is needed to determine their long-term sustainability. In addition, while parallels with other creative arts interventions such as music and clay therapy have been acknowledged, the absence of direct comparative studies in oncology highlights a significant gap and calls for future research to determine the relative and complementary contributions of these modalities [39–41]. While the psychosocial processes of guilt, shame, and self-pity identified in this study appear conceptually transferable to other cancer populations and stigma-laden contexts [1, 3, 38, 44, 45], their broader generalizability requires targeted empirical investigation. While standardized measures captured no statistically significant changes, the qualitative findings provided complementary evidence of meaningful psychosocial improvements, highlighting the value of integrating quantitative and qualitative approaches in future oncology art therapy research. While the limited sample size precludes definitive conclusions from the quantitative component, it is consistent with prior photovoice and arts-based oncology studies. Future research with larger and more diverse cohorts is required to confirm and extend these preliminary insights.

Data Availability Statement

Due to the sensitive nature of the questions in this study, survey respondents were assured that their raw data would remain confidential and not be shared. Therefore, the raw data underlying this study are not publicly available. However, the corresponding author can provide summary data or aggregated results upon reasonable request in compliance with ethical guidelines.

Ethics Statement

Before starting the study, the x Rectorate Scientific Research and Publication Ethics Board (dated 31/05/2019 and numbered 24237859-438) was used, and approval was received from the Chief Physician of x Medical Faculty Rectorate Health Application and Research Center y Hospital (dated 11/04/2019 and numbered 48814514-299-E.5130). Moreover, the research was carried out within the Declaration of Helsinki.

This study has been accepted as a doctorate thesis by the Health Sciences Institute of x. While the study's originality may appear diminished due to the extended doctoral education process and the time required to obtain work permits,

I would like to emphasize that this research reflects the dedication and passion of a young researcher who has successfully achieved all their goals and thoroughly enjoyed the journey.

Disclosure

All listed authors confirm that they meet the authorship criteria and that all authors agree with the manuscript's content.

The present address of any author is not different from that where the work was carried out. This manuscript is derived from the corresponding author's doctoral thesis [49], representing the culmination of extensive research and dedication to advancing knowledge in the field.

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

Conceptualization: Aysun Akcakaya Can, Sevilay Hintistan, and Yilmaz Bulbul. Data curation: Aysun Akcakaya Can and Sevilay Hintistan. Formal analysis: Aysun Akcakaya Can and Sevilay Hintistan. Funding acquisition: Aysun Akcakaya Can. Investigation: Aysun Akcakaya Can, Sevilay Hintistan, and Yilmaz Bulbul. Methodology: Aysun Akcakaya Can, Sevilay Hintistan, and Yilmaz Bulbul. Project administration: Sevilay Hintistan and Yilmaz Bulbul. Resources: Aysun Akcakaya Can. Software: Aysun Akcakaya Can and Sevilay Hintistan. Supervision: Sevilay Hintistan and Yilmaz Bulbul. Validation: Aysun Akcakaya Can and Sevilay Hintistan. Visualization: Aysun Akcakaya Can and Sevilay Hintistan. Writing—original draft: Aysun Akcakaya Can. Writing—review and editing: Aysun Akcakaya Can, Sevilay Hintistan, and Yilmaz Bulbul. The authors have checked to ensure our submission conforms as applicable to the Journal's statistical guidelines described here. The authors affirm that the methods used in the data analyses are suitably applied to their data within their study design and context, and the statistical findings have been implemented and interpreted correctly. The authors agree to ensure that the choice of statistical approach is appropriate, conducted, and interpreted correctly as a condition of submission to the Journal.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. (*Supporting Information*)

Supporting Information 1: ISSM Consolidation Criteria for Reporting Qualitative Research (COREQ) checklist.

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