



Original Article

A present from the forest: Focus group interviews on cancer survivors' forest experiences

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ABSTRACT

Objective: To explore cancer survivors' forest experiences and to understand the relevance of these experiences from their perspectives in the context of the growing interest in nature's impact on health and quality of life.

Methods: From July 29 to August 12, 2021, four focus group interviews were conducted with cancer survivors who visited forests in South Korea. The data were analyzed using qualitative content and thematic analysis.

Results: The participants were 21 female cancer survivors with a mean age of 58.4 (age range 44–69) years. The focus group interviews revealed three themes and 10 sub-themes regarding subjective perceptions and experiences related to forests. The overarching themes were as follows: (1) awakened bodily senses and fascination with the forest; (2) remedial effect; and (3) a source of inspiration. These three themes capture the impact of forest experiences on participants' lives and the value they derived from these experiences. The participants considered these experiences a gift from forests. In particular, they experienced aesthetic enrichment and restorative effects such as boosted energy levels, reduced fatigue, and a buffer against mood swings. Finally, forests were a source of inspiration that led the participants toward personal growth.

Conclusions: By gaining a better understanding of survivors' forest experiences, we identified that forest-based interventions for supportive cancer care can align with patients' values and preferences and serve as a secure space where they can feel cared for. This study can contribute to the development of forest-based interventions for cancer survivorship care.

Introduction

Advances in early detection and treatment have significantly increased the number of cancer survivors. In South Korea, the prevalence of cancer in 2019 was 4.2%, and when people live to life expectancy, the probability of getting cancer reaches 37.9%.¹ Additionally, in the United States, there were over 16.9 million people with cancer in 2019; this number is expected to exceed 22.1 million by 2030.² Presently, approximately 50% of people diagnosed with cancer survive 10 years or longer.^{1–3} Thus, indicating that the health problems of cancer survivors are becoming an important issue in many countries.

Cancer survivors face a variety of health care challenges, including managing the disease and side effects of treatment; navigating their information and support needs; identifying signs and symptoms of disease progression; and making appropriate lifestyle changes to prevent recurrence or secondary cancer.^{4–6} During cancer treatment, patients receive symptom management and care from medical staff. However, post

treatment, self-management of health during daily life becomes essential. Many cancer survivors struggle with this aspect. Therefore, a smooth transition from treatment to post-treatment health care is imperative. The health management strategies of cancer survivors who have completed treatment are not much different from the health promotion activities of the general public.

Among health management strategies, forest activities can combine healing effects such as stress reduction, immunity improvement, and anti-cancer effects, and are actively recommended.^{7,8} Recently, there has been an increasing interest in forests for health promotion and curing illnesses.^{9,10} Forests began to be perceived as a place for relaxation and healing in the Forestry Culture and Recreation Act, amended in March 2010, in Korea,¹⁰ and industrialization and urbanization accelerated people's interest in forests for recreation as well as desires for health promotion. Patients can also experience emotional and psychological stability by making maximum use of natural materials and engaging in physical activity.^{9,10} The effects of forest experiences have been

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examined from various perspectives; in the emotional–psychological aspect, they positively impact emotional stability and self-actualization and help relieve depression.^{11,12} Consequently, forest experiences have been proposed for health promotion for people with illnesses.¹³ There have been reports of its positive effect among women with breast cancer.^{12,14}

However, exploratory studies on the subjective experience in people with cancer or cancer survivors who visited forests are lacking. Qualitatively exploring the experiences of people who visited the forest will help reveal the specifics of forest healing. Therefore, the aim of this study was to explore the experiences of cancer survivors who have visited a forest, and to understand their perspectives regarding this healing process. The results can have implications for developing forest-based programs for cancer survivors.

Methods

Study design

A descriptive qualitative study using the Focus Group Interview (FGI) methodology.

Participants and recruitment

Convenience sampling was used and recruitment was announced by e-mail and online poster through the six Cancer Survivorship Centers in a metropolitan area. A QR (Quick Response) code was inserted in the emails and online posts for recruitment advertisements, so that participants could easily access it. The research team contacted the people who were interested, via the phone numbers filled in the sheet, and then explained the purpose and process of the research. After initial explanations, the researchers checked whether the participants met the inclusion criteria and were available for the preferred date/time for the FGI. The FGI were conducted with cancer survivors who met the following eligibility criteria: completion of surgery, chemotherapy, and radiation therapy at least six months ago; and experience of visiting forests for their health after cancer diagnosis and treatment. Exclusion criteria were recurrent cancer or psychological issues (i.e., panic disorder or bipolar disorder) based on self-reporting.

Data collection

Data were collected through four FGIs from July 29 to August 12, 2021. Interviews ranged from 2 to 2.5 h. The focus groups consisted of five to six participants with rich experiences related to the research topic,¹⁵ that is, the experiences of visiting in forests. The FGIs employed semi-structured questions, beginning with “What did you experience in the forest?” An in-depth approach was adopted, and through follow-up questions data were collected until no more new stories emerged.

Concurrent data collection and analysis was performed with new analytic steps for the process of additional data collection and new data informed the analytic processes. Three researchers—EYP, JHS, and MYA conducted the FGIs, serving as interviewers and field observers. The interview was recorded with participants' consent and the interview record's transcription was done with strict confidentiality, ensuring anonymity.

Data analysis

Data were analyzed using Braun and Clarke's six-stage qualitative thematic analysis.¹⁶ All recorded interview data were transcribed by a trained research assistant. All transcripts were then read systematically by EYP, MYA, and JHS, while listening to the audio recordings, to gain an overall impression of the data. We re-read the transcripts to familiarize ourselves with them. Thereafter, we generated initial codes, which were pithy labels achieved through capturing both a thematic and conceptual

reading of the transcripts. These steps of the analyses were conducted by all the authors. To identify themes, we compared the similarities and differences in the codes and categorized them into similar semantic units. After developing the preliminary themes, EYP and JHS examined whether the themes work in the context of the entire data set. For the final refinement of the themes and identifying the essence of the themes, all transcripts and findings were discussed thoroughly by EYP, JHS, and the expert who had not participated in the FGIs, nor had access to the raw data, to ensure transparency of the analysis process and validation of the findings. We reviewed the themes relative to all the extracted codes, identified the essence and concept of each theme, and defined and named the themes for further discussion. Finally, we wrote an analytic narrative and contextualized it.

The analysis process was conducted manually by all the authors. Field notes of the FGIs were fully reflected in the analysis process. We shared and discussed our experiences and opinions regarding data collection and analysis. Two researchers—EYP and JHS—who were oncology nurse practitioners, were experts in conducting qualitative research.

Ethical considerations

This study was conducted after obtaining approval from the relevant institutional review board (IRB: 1044396-202103-HR-055-01). We obtained written informed consent from all the participants after explaining the purpose and process of the study and that the FGIs would be recorded. They were also informed that the data would be used for research purposes only and the recordings and manuscripts would be kept on a single, locked computer.

Rigor

To ensure rigor, we applied Sandelowski's criteria:¹⁷ reliability, fittingness, auditability, and confirmability. The FGIs were recorded and transcribed verbatim. We ensured the accuracy of the transcriptions by comparing them with the recordings. We also identified the adequacy of citations to support the themes derived from the data. The participants' narratives were described and interpreted based on the derived themes. We read the manuscript multiples times and clearly described the analytical procedures to derive initial codes, themes, and sub-themes. We also frequently discussed about maintaining neutrality through reflective journaling throughout the research process.

Results

A total of 21 cancer survivors participated. All participants were women, and the proportion of breast cancer survivors was 66.6%. The participants' age ranged from 44 to 69 years (mean: 58.43 years); and it has been four years, on average, since completion of their treatment (range: 8–120 months) (Table 1). The participants had visited forests for various reasons, and they shared rich stories that they derived from these forest experiences. At the time of consent or FGI, most of the participants had recently or would often visit forests, although it is not part of regular activities or a structured program.

Three themes and 10 sub-themes about participants' experiences of visiting forests and their perceptions of how these visits affected their daily lives identified and constructed from the analysis of the four FGIs (Table 2). The three overarching themes were as follows: 1) awakened bodily senses and fascination with the forest, 2) remedial effect, and 3) a source of inspiration.

Theme 1: Awakened bodily senses and fascination with the forest

This theme referred to the experience of the opening up of the four senses: sight, touch, smell, and hearing in the forest. Soft and soothing forest sounds from birdsong, breeze, and the creek was described as “awakened hearing sense.” In addition, most of the participants

Table 1
General characteristics of participants (N = 21).

Characteristics	Mean (range) or n (%)
Age (years)	58.43 (44–69)
Months since last treatment	49.24 (8–120)
Education	
≤ High school	11 (52.4)
Bachelor's degree or higher	10 (47.6)
Occupation at consent	
Housewife	14 (66.6)
Office worker	3 (14.3)
Professional	1 (4.8)
Other	3 (14.3)
Type of cancer	
Breast cancer	14 (66.6)
Double primary	3 (14.3)
Lung	2 (9.5)
Thyroid	1 (4.8)
Colon	1 (4.8)
Treatment ^a	
Operation	21 (100.0)
Radiotherapy	16 (76.2)
Chemotherapy	14 (66.7)
Hormone therapy	7 (33.3)

^a Multiple response

Table 2
Themes and sub-themes.

Theme	Sub-theme
Awakened bodily senses and fascination with the forest	Soft and soothing forest sounds from birdsong, breeze, and the creek Vibrant green forest landscape Pleasant forest scents that boost freshness Gentle and warm touch of wind and forest ground
Remedial effect	Boosting energy levels and reducing fatigue Buffering against emotional fluctuation Accelerating the release of toxins
A source of inspiration	Focusing on the here and now Solace and gratitude Engaging with the forest through reflection or mirroring

expressed that the forest offered “a vibrant landscape with greenery,” “pleasant scents with freshness,” and a “gentle and warm touch.” These forest stimuli made the participants awaken their bodily senses. In the forest, participants felt that their senses were stimulated, and they felt soothed, relaxed, and pleased.

“When I went to the forest, I really liked the sound—it was heavenly. I thought, ‘Oh my gosh, there’s a place like this!’ It was unreal. I was so moved that I recorded that sound on my cell phone. That was really, really impressive.” <FGI-D>

“I feel that the smell is definitely good, and the air is different. The smell and air are so good to me. I can’t feel it before” <FGI-A>

“There’s not much that can make me feel the soles of my feet like that, but when I walked along the dirt road, the feelings of gravel stimulating my feet was so good.” <FGI-B>

The wide variety of positive experiences led participants transform from momentary visitors to people with a deep fascination with forests. Previously, most participants did not have any specific expectations because of misconceptions about forests, such as the fact that exploring them would involve strenuous activity. However, after experiencing it, many of them expressed how they were unexpectedly satisfied with the forest. The joy they felt in the forest and the feeling of their senses awakening left them fascinated with the forest and wanting to visit more often. These experiences were formed and the first theme as “awakened bodily senses and fascination with the forest” was extracted.

*“After I got sick, I found out that there was [a] ** Butterfly Park (an ecological park in ***) in my neighborhood. I knew it was there, but I wasn’t very interested in it. However, I went there for the first time because I heard that a trail in the park was newly built. Um, well, how should I say this? It was amazing! I’ve never felt such joy in my life. Since that time, I have been going almost every day” <FGI-B>*

Theme 2: Remedial effect

This theme captured what led the participants to the forest, that is, the physical and emotional benefits of the forest, which were almost like medication. The subthemes that showed effects from the forests included the following: boosting energy levels and reducing fatigue, buffering against emotional fluctuation, and accelerating the release of toxins. Some participants’ remarks were related to the physical benefits of boosting energy levels and alleviating fatigue:

“I feel like I’ve taken a kind of nutritional tonic or energy drink; I’ve been less tired for about two days. For example, when I worked overtime, I would have been very tired in the past, but I definitely feel less tired after I went to the forest.” <FGI-B>

“My condition has improved a lot since I’ve been to the forest. In the past, it was hard for me to go anywhere by bus because I didn’t have much energy. Honestly, I couldn’t sit like this and listen to other people’s stories because I didn’t have the energy. But now ... In that way, my physical strength has improved a lot.” <FGI-D>

In addition, most participants highlighted that visiting and staying in the forest resulted in some noticeable changes in their emotional state. The experience not only calmed them and stabilized their mood but also helped control emotional fluctuation. One said,

“Whenever I do or hear something, I can deal with it more calmly. I would say my emotional ups and downs have decreased. Since I feel more comfortable, I can respond with a more relaxed mind. It feels like there’s a buffer now.” <FGI-B>

The forest as a buffer that moderates emotional swings was also described by another participant, who spoke about relief from sadness or depression.

“I think depression is relieved quite a bit. When I’m at home, my body and mind feel down, but once I go to the forest and walk, I often experience depression disappearing because I see new lives, leaves, see the sky, feel the wind and so on.” <FGI-D>

Moreover, a number of participants felt their bodies were cleansed and refreshed by releasing certain toxins or wastes.

“As the water gushes, the green is thick, and the wind blows, I feel like nature is petting me so that all the bad energy inside me goes out.” <FGI-D >

Theme 3: A source of inspiration

This theme included the forest's characteristics and what they learned from the forest. They considered the forest as a source of inspiration for focusing on the here and now, solace and gratitude, and reflection or mirroring. The forest invited them into the present moment in which they could thoroughly face their own existence. This experience helped participants connect with themselves. Some said that it offered the ability to focus on the here and now, show gratitude to others, and gain insights and wisdom, as is the case with intimate friends or inspiring mentors.

“Earlier, I couldn’t just forget home when I went into nature and forget things like [my cancer] when I met people. But now, once I come out the front door, I forget about it and now I’m just immersed in this.” <FGI-A>

"I feel like I'm becoming completely myself. Others' opinions of me no longer matter." <FGI-B>

"The forest is a refuge for me; in short, a haven. It's a place where I can recreate my life. It's so nice because it allows me to let go of all those feelings when things are hard and unbearable and I'm anxious and tired." <FGI-D>

Apart from the above, some participants gained a new perspective by experiencing the forest as a living system, reflecting and looking back on themselves in the forest as well. Understanding the spiritual meaning of nature provided them with wisdom and creative insight. This was a subtheme - engaging with the forest through reflection or mirroring. For example:

"I went in early June, and a lot of these leaves came out. But, uh ... in this way, they're doing their job. So, what about me? I can't just sit down either. Even the leaves go through the cycle of life and do their job by the season, so I should not give up on living." <FGI-C>

"What I learned is that the trees are pretty no matter how flowers bloom. Not only do they bloom from the top but also from the dead branches next to this pillar. They are just as beautiful." <FGI-D>

Discussion

The purpose of this study was to explore the experiences of cancer survivors who visited forests and to discern the relevance of these experiences on their lives from their perspectives. According to the shifting healthcare demands for improving care services of cancer survivors,¹⁸ there is a need to better understand patients' own experiences regarding physical, psychological, and social concerns in surviving cancer. To date, despite the growing interest in nature's impact on human health and quality of life, there are few such studies in the context of cancer.¹⁹⁻²⁴ In addition, although forest experiences cover a wide spectrum and diverse subjects, existing forest-based surveys for cancer survivors are still preliminary.

Against this background, we conducted four FGIs involving 21 participants, which revealed three themes regarding the forest experiences of cancer survivors. These three identified themes shed light on the value of forests in the lives of some cancer survivors. Overall, forest experiences were considered a gift by the participants; they experienced aesthetic enrichment, physiological and psychological restorative effects, and ultimately, personal growth. The present findings can be explained by Kaplan's attention restoration theory,²⁵ which explains forests' healing effects; the core properties of the healing mechanism are "being away" and "fascination." Moreover, the results support Handee's model,²⁶ which makes a case for personal growth from forest experiences.

Regarding the first theme, the participants' bodily senses were awakened through sight, sound, smell, and touch in the forest. This is supported by other qualitative or mixed methods studies in relation to nature-based experiences that reveal the enjoyment of the sensory aspect and aesthetic enrichment resulting from interaction with nature.²⁷⁻²⁹ Considering that sensory experience and awareness is the foundation based on which a person can effectively and creatively act, feel, communicate, teach, or learn,³⁰ the first theme could not only represent a powerful motivation to visit forests but also be a prerequisite for the subsequent themes.

The findings derived from the second and third themes reveal the benefits of cancer survivors' forest experiences for their health and lives. They also contribute to the discourse on the physical, psychological, spiritual, and social aspects of accepting and leading life as a cancer survivor. The second theme involved the health impacts of forest experiences; the participants emphasized the improvement in cancer-related fatigue and emotional fluctuations. Notably, they likened these benefits of forest experiences to taking natural stimulants or visiting a natural pharmacy. This is supported by prior studies reporting that gardening or nature-based experiences can improve emotional well-being and cancer-

related fatigue.^{19,21,22} Considering that cancer-related fatigue is extremely common in survivors and that psychological factors could predict cancer-related fatigue,³¹ these results give credence to the need to evaluate the effects of fatigue management programs based on forest experiences.

In prior studies, researchers discovered that forest landscapes may be effective in decreasing state anxiety and depression among female cancer survivors.^{27,28} Further, they found that forests facilitate restorative experiences that improve psychological and physiological health, promote recovery from fatigue, reduce psychophysiological stress, and enhance positive emotional states.^{19,20} These studies found that where women interact every day is most important for their physical and psychological well-being. The literature suggests a strong interplay between emotions and places, which, while in need of further exploration, is compatible with the second theme.

Finally, the third theme involved the role of the forest as a source of inspiration, helping focus on moments to obtain solace, insight, or wisdom. By interacting with the forest, the participants could reflect on and mirror themselves so that they could accept their lives with gratitude. This is related to the ideas of Handee and Brown,²⁶ who claimed that forest experiences enhanced individuals' awareness of basic patterns of feelings, behaviors, values, and beliefs, as well as instilling a sense of humility toward nature as the first step in personal growth. They argued that forest experiences facilitate functional and inspired social interaction, which emerged through engagement with the forest.

According to Blaschke,²⁴ nature represents an unburdened and uninterrupted space embedded in everyday life from which patients source strength and meaning to address their needs. Furthermore, nature could be seen as a potential "secure base" offering patients a familiar and nurturing context from which new perspectives can be gained and caring connections can be made with themselves, others, the past, and the future.²⁴ These descriptions of nature-based experiences and their role are almost compatible with the third theme in the present study.

Preliminary indications from the qualitative findings show that a forest-based program may offer an acceptable strategy for increasing physical activity and relieving emotional and spiritual distress among cancer survivors. Therefore, further studies in large and diverse samples are necessary to test for forests' effect with a structured forest program.

Limitations

This study has certain limitations that must be acknowledged. First, our findings consist of narratives localized in South Korea. However, we strived to recruit a sample that would allow for the transferability of results by seeking participants who would be able to fully express their own experiences. Second, as all participants were women, the experiences of male cancer survivors were not accounted for. Future studies must include men with cancer. Despite these limitations, this study offers a better understanding of forest experiences from the perspective of cancer survivors, and thus gives credibility to forest intervention for cancer survivors.

Conclusions

We explored the forest experiences of cancer survivors through a qualitative approach. The identified benefits of forest experiences included sensory stimulation, authentic physical and emotional effects, and inspirational mentoring as a kind of gift for themselves. Based on the knowledge of patients' forest experiences, supportive nature-based cancer care can align with their values and preferences, leading to the delivery of effective care. Thus, forest experiences can be a powerful nature-based intervention for providing a potential secure space to cancer survivors, facilitating connections with themselves to address their health-care needs. This study will also contribute to the development of forest-based programs to enhance cancer survivors' physical, emotional, and spiritual well-being and the improvement of survivorship care.

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Authors' contributions

All authors contributed to this study development and take full responsibility for its content. EYP and JHS conceived the idea and design of the study, and were responsible for undertaking data collection, analysis, interpretation of the findings. MYA was responsible for the ethics applications, data collection and analysis. The initial draft of the article was produced by JHS and EYP, and circulated repeatedly between all authors for critical revision. All authors read and approved the final manuscript.

Ethics statement

This study was conducted after obtaining approval from the relevant institutional review board (IRB: 1044396-202103-HR-055-01).

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Declaration of competing interest

None declared.

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