

Cancer-related fatigue: Patients' experiences of an intervention at a green care rehabilitation farm

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1. Introduction

Cancer-related fatigue (CRF) is a major issue in people treated for cancer. Up to 35% of those who have completed curative treatment and who are without known cancer will experience persistent tiredness after completion of treatment [1,2]. Fatigue is often defined as an overwhelming sense of lack of energy that can be induced by physical or mental exertion [3]. Fatigue usually decreases in the year after cancer treatment, but about 30% of patients treated with chemotherapy experience persistent fatigue, defined as chronic fatigue, for 10 years or more [4].

The mechanisms and cause of fatigue remain largely unknown and undertreated by health care professionals, partly because of limited knowledge about effective measures [5]. There is no specific treatment for chronic fatigue, but several interventions may alleviate the symptoms [6]. A review of CRF treatments [7] concluded that non-pharmacological treatments such as exercise, sleep therapy, and cognitive-behavioral interventions may be beneficial. Reinertsen et al. [8] classified interventions into three main categories: physical activity, cognitive therapy, and stress-reducing therapies, and group setting was most beneficial for all three groups of intervention. A Cochrane review in 2016 [9] found that educational interventions may have a small effect by reducing and helping people cope with fatigue. The authors concluded that incorporation of education for the management of fatigue as part of routine care appears reasonable, but that educational interventions on their own are unlikely to reduce fatigue optimally or help people manage its impact. Education should be considered in conjunction with other interventions [9].

Different complementary and alternative therapies have been introduced to help patients experiencing CRF. A review in 2017 concluded that many strategies seem promising, but the quality of randomized controlled trials is generally quite low, making it difficult to draw conclusions about the effectiveness of each self-care strategy [7].

Various studies have also focused on multidisciplinary approaches

such as intervention components. Spahn et al. [10] used a multimodal mind-body program that included moderate physical activity and compared it with a walking-only intervention. Both interventions reduced fatigue symptoms to a similar extent, and the authors concluded that home-based walking interventions should be recommended because of the lower costs. A study in 2017 [11] also showed that a multimodal therapy comprising movement therapy, behavior-based, and mindfulness-based therapies affected CRF.

Green care is an innovative approach that combines simultaneous caring for people and caring for land through three elements that have not been previously connected: (1) multifunctional agriculture and recognition of the plurality of agricultural system values; (2) social services and health care; and (3) the possibility of strengthening the farming sector and local communities [12]. Green care is an umbrella term for a broad spectrum of health-promoting interventions that all use elements of nature in which the ultimate goal is to maintain or promote a person's social, physical, mental, and even educational well-being [13]. Green care includes complex interventions such as care farming, animal-assisted interventions, therapeutic horticulture, and nature or forest-based activities [14]. What links this diverse set of interventions is the use of nature and the natural environment as a framework. Green care is thought to be of potential benefit in the following areas: (1) experiences of mastery and personal skills; (2) positive effects on mental health; (3) improved physical health; (4) structure and experience of meaning; (5) dignity associated with honest work; (6) social gains; and (7) feelings of acceptance and support from nature and animals [14].

Rehabilitation programs using a nature-based (green care) vocational rehabilitation concept in specially designed rehabilitation gardens are becoming more common [13,15]. In this approach, varied physical outdoor activity is combined with horticulture, cooking, eating, and psychosocial education about coping techniques within a group of patients. Reductions in severe stress and health care consumption and an increased rate of return to work after experiencing the occupational value of everyday occupations in this setting have been reported. To our

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knowledge, green care has never been tried for patients suffering from chronic CRF (cCRF).

This study is inspired by different theoretical perspectives. The biophilia hypothesis is one of them. The Biophilia hypothesis proposes that human beings have an instinctive attachment to the natural world and that humans attune selectively to the presence and condition of animate natural elements (i.e., plants and animals). Kellert and Wilson described biophilia as “the innately emotional affiliation of human beings to other living organisms [16].

The theory of salutogenesis and empowerment [17] are connected to the rationale for choosing the green care rehabilitation farm as an intervention. Salutogenesis focuses on the factors that contribute to a person’s health, as opposed to the processes causing illness and disease (pathogenesis). In this perspective, the phenomenon called “the sense of coherence” (SOC) is crucial; people with a high SOC score are more resilient to stressors and will cope better with stressful experiences than will those with a lower SOC score. According to Antonovsky [17], human beings always strive for coherence and wholeness throughout life. The idea of empowerment is closely linked to the salutogenetic perspective. Empowerment can be defined as a process by which the individual mobilizes the available resources to deal with challenges [18].

The aim of the present study was to investigate how cancer survivors with cCRF experience participating in a multidisciplinary and individualized lifestyle approach on a specially designed rehabilitation green care farm.

2. Methods

2.1. Design

To understand and document how the participants experienced the intervention, semi-structured qualitative interviews were conducted 1–3 months after the intervention was completed.

2.2. Subjects

The study participants were eight cancer survivors (five women with breast cancer, two men with testicular cancer, and one man with Hodgkin’s lymphoma) aged 35–63 years who had followed a chemotherapeutic adjuvant treatment for any type of malignancy for at least 3 months and had finished the treatment for at least 24 months before inclusion in the study. They all experienced CRF and had a score of >16 on the Fatigue Questionnaire (FQ; score range of 0–33). The exclusion criteria were evidence of relapse, depression, or other important untreatable comorbidity that could explain the fatigue. The participants needed to be able to read or understand Norwegian.

2.3. Description of intervention

The farm in the present study lies in a rural setting with an archipelago/seaside close by, about 20-min’ drive from a city center (<http://www.levendegard.no/>). Around the farm are forests and pastures where wild sheep graze, and there are green plains up to the house and barn. The farm also hosts horses. Next to the barn is a greenhouse, and outside are several beds where vegetables and flowers are grown. A dog moves freely both outside and inside.

The participants met at the farm one day (6–7 h) per week for 12 weeks and participated in a varied range of activities. Activities included, but were not restricted to, gardening, fishing, preparation of healthy food, feeding animals, and forest management. Coaching in healthy lifestyle and behavioral strategies for activity management, adapted for patients with cCRF, was provided. Teaching, discussions, and conversations were also included in the program.

The days at the farm were scheduled as follows: (1) morning coffee, going over the plan for the day; (2) teaching about a healthy lifestyle

adapted to individual patients with CRF; (3) working in the greenhouse and vegetable garden, feeding and grooming the animals, or working in the forest, fishing, or cooking; (4) lunch and discussions; (5) rest; and (6) recording the past weeks’ activities in a diary.

The staff who supervised and coached the participants throughout the intervention were a physiotherapist with experience working in cancer rehabilitation who had 20 years of farming experience and a floristry and market gardener who was experienced in horticulture. The coaches were supervised by experienced researchers within the fields of physical activity, nutrition, cognitive behavioral strategies, green care, and oncology.

The American Cancer Society guidelines for physical activity in cancer survivors were followed [19]. In addition to habitual physical activities during each visit to the farm, the coaches helped provide a plan for the patients to be physically active at home. Patients were educated in the essence of the New Nordic Diet, and the food served and cooked followed this diet [20]. This nutritional philosophy fits well within the guidelines of nutrition for cancer survivors [19]. The patients were also taught about how to grow healthy foods.

The coaches were educated in providing education about fatigue and instruction in energy-conserving techniques, coping techniques, and activity management. All activities leading to self-perceived exhaustion, including physical, social, and mental activities, were monitored in the participants’ diaries, and their rating of perceived exertion for the entire session was recorded on the following day. The rating of perceived exertion was recorded on following day because, in people experiencing cCRF, physical, social, and/or mental exertion can bring on extreme, prolonged exhaustion. The participants were coached to avoid self-perceived exhausting activities, while gradually increasing their performance of perceived beneficial activities. This method allowed individual tailoring of the optimal amount of activity for participants with cCRF to avoid exhaustion, with the aim of reducing the degree of cCRF. All participants were coached weekly about their optimal amount of activity and how to record their rating of perceived exertion.

2.4. Data collection

The researchers developed a thematic interview guide that addressed the following themes: the intervention as a whole, different activities and lectures, surroundings and contact with animals, and thoughts about the future. However, participants were given the opportunity to steer the conversation so that their experiences appeared to be discussed spontaneously [21]. The interviews were conducted by one researcher not involved in the planning or implementation of the study, they lasted between 60 and 90 min and were audio-recorded. The transcribed material occupied 108 pages.

2.5. Data analysis

A hermeneutic interpretative circular approach was taken in the analysis process; i.e., moving back and forward between the raw data and the interpretations [21]. Malterud’s [22] systematic four-step process of text condensation was used as follows: (i) reading all the material to obtain an overall impression and noting preconceptions; (ii) identifying units of meaning and coding different aspects of the participants’ experiences; (iii) condensing and abstracting the meaning within each of the coded groups; and (iv) summarizing the contents of each code group to generalize descriptions and concepts to a main theme reflecting the participants’ most important experiences.

Consensus usually emerged for most of the interpretations, but when any doubt or disagreement arose, the researchers went back to the data for new discussions. Through this repetitive process, a broader understanding emerged.

2.6. Ethics

The ethical principles highlighted in the 2009 Declaration of Helsinki [23] were followed. Before the start of the study, all participants received information about the intervention and signed a written informed consent form. Participants were informed about the opportunity to withdraw at any time.

The collected data were treated confidentially, and the participants were anonymized. The study was assessed and approved by the Ethical Committee at the Faculty of Health and Sport Sciences, University of Agder, and approved by the Norwegian Center for Research Data (Ref No. 51040).

3. Results

The participants shared their thoughts that CRF led to a state of grief over the loss of their previous life. The farm was perceived as a free space. The participants were unable to separate the different parts of the stay from each other, but instead emphasized that the stay was a holistic experience.

To be a part of a group, chat together, garden in the green house, it felt so good to be there. I looked forward to every Wednesday, but I am not able to entirely put my finger on why, on what exactly it was that I was looking forward to, whether it was to grow tomatoes, the peace and quiet out there, or to speak with the others, I think it was the whole setting.

The participants experienced a calmness they had not found in the city; they noted that both the natural surroundings and the buildings they were spending time in had an impact:

Just to get out there and feel that atmosphere, the calmness, and peace. Both in the natural surroundings and inside the barn, with that kitchen and the long dining table. My shoulders were automatically lowered out there.

No one mentioned the animals as important factors, and no one mentioned any negative factors except that it was a long way for some of them to drive.

Fig. 1 schematically presents the participants' experiences of the intervention. In the following sections, their experiences are described in four main themes with two to four subthemes.

3.1. Social fellowship

Through being in the group, the participants received a desired confirmation that others struggled with the same challenges. They described how the group provided support, good conversation,

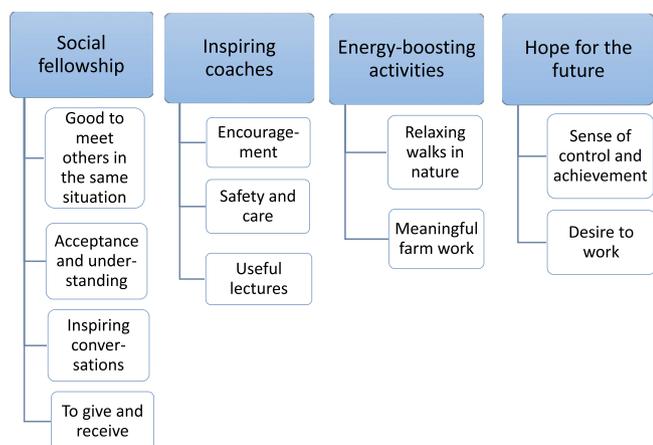


Fig. 1. The participants' experiences of the intervention presented in four main themes with two to four subthemes.

acceptance, and understanding. Some noted that they had felt very lonely after finishing cancer treatment and that they had received limited follow-up. It felt good to get together with others in the same situation. One participant described the community's role as:

The community out there, it became more real, the fact that there are others in the same situation ... To have others to share experiences and happenings with, who understand how it is, as they are in the same situation. We do not have to use that many words.

The participants explained how they received little information and understanding from their general practitioner and other health care personnel, and had a hard time feeling accepted and understood by those surrounding them in their daily life. Many noted that their family members were exhausted. At the farm, they felt that they could relax and take things at their own pace; they did not have to excuse themselves when feeling tired.

It was so nice to be together with others in the same situation, to feel as an equal. If someone goes to rest, that is completely normal. Then you think to yourself, 'Yeah, I want to do that as well. That is ok.' One is accepted and liked by the others. It is a very good feeling.

To feel accepted and understood by others made it easier to accept oneself and one's situation.

I have learned to accept myself. You are together with people and learn from others. Some are further along in the process than I am. To be with others and share experiences, that gave me a lot. As a result, I accepted my situation to a greater extent. I learned a lot from being together with others, as they are all at different stages in the process.

Some of the participants were mentally exhausted but throughout the stay at the farm, they felt accepted and started to rebuild themselves.

What has been the most important for me throughout the stay has been to rebuild my confidence. I have recovered some of it that I felt I had lost as a result of my diagnosis.' At the farm, people take seriously that some are affected by fatigue after becoming cancer-free.

Multiple participants conveyed that it was good to use their own experiences to help others. Those who had fatigue for a while had been through both "ups" and "downs." As a result, they have had many concrete ideas about what could be done to avoid the major downs.

One of the others is where I was one year ago, I recognize everything she is going through, I have been there myself. I use my experience to help her. She thinks it is weird that I have established control over my situation, but already throughout the course of the 12 weeks in the program, there was a major difference in her state. She started to accept the situation, something she had not previously done, and it is only at that point one can start to work on the problem.

Through conversations and discussions within the group, these participants had received tips and ideas on things they could do differently to make their daily life easier. The participants emphasized the societal impact of the stay—they suggested that it could prevent depression and possibly reduce the number of disability benefit claims.

3.2. Inspiring coaches

The two who run the farm played a significant role in the participants' experiences of their stays.

It has been such an incredibly good place to come to. Kari and Sara have an incredible radiance, which contributed to my finding peace here and that it was a good place to be.

The two of them were so caring. They were really great leaders. I felt that they saw us, and were good at meeting us and asking how my everyday life had been since my last stay.

Having two permanent coaches following them along the entire process allowed the participants to experience a sense of safety and stability. They felt that they were seen as individuals and did not feel controlled or lectured to, but rather treated as equals. The coaches also played an important role in conversations and discussions. One of the participants said:

Sara and Kari were great at running the program, they were very encouraging. I think Kari was especially great, as she was the one facilitating most of the programming, and she managed to make those who were silent participate and be constructive. If anyone started to move towards complaining and negativity, she was able to turn this into a positive.

Many of the participants had been through many unpleasant experiences, and there was therefore a danger that complaining and negativity could become the focus of some conversations. Kari and Sara played an important role in turning these conversations into a more constructive and positive direction.

Kari and Sara manage to convey safety and to create curiosity, which results in good conversations where we could ask questions and discuss things.

One participant mentioned that she became more confident in her own capacity over time and that this was largely a result of walking with Sara, who used this time to support and encourage her. Sara made her realize that it would not be dangerous if she became tired while walking, and she was able to exceed her expected capacity. This also made her more confident in her own ability when being on her own and motivated her to go walking by herself.

The participants emphasized the importance of the lectures and having the opportunity to discuss the themes afterwards.

There were so many great topics, and multiple topics I wish we could dive deeper into if there was time. You could, of course, find a lot of it online, but it is something completely different when you hear it and then sit down to discuss it afterwards. We are all in the same situation and have different things to contribute to the conversation.

3.3. Energy-boosting activities

In previous courses and experiences, the participants had heard that physical activity was important. During the stay, they wore physical activity monitors. One of the participants had set a goal of walking 10,000 steps per day. She stated:

The fact that we registered physical activity has made me push myself. If I am under 8000 steps, I will go for some extra rounds.

For several participants, this level of physical activity was not as recommended in guidelines, but gave them hope for what might become possible with time. Most emphasized the importance of the physical aspect when explaining why they chose to go walking. Among many items mentioned, they noted that walking gave them a sense of calmness and the opportunity to alleviate their stress and anxiety.

It is so good to be out there, because I sort of forget the challenges of my everyday life, and I am completely relaxed and present in nature.

Others explained it in similar ways, but most focused on the mental effect a walk could provide. Another participant shared the following:

Even if I am physically tired, a walk boosts my psychological energy ... it helps to move your body and use energy, it provides calmness.

Many but not all of the participants related physical activities to improved physical capacity.

Even if I have bodily pain, I prioritize going for a walk because it feels so good when I do, and I feel lighter in both my body and head. It is a bummer that I am not achieving better physical shape. I go the same route and, even though I try to push myself, it is hard to walk faster. It is a 55-min walk each time.

The lecture about physical activity was good for many of the participants to hear. They learned that, when facing fatigue and during cancer treatment, a person may not experience an improvement in cardiorespiratory fitness even when participating in regular physical activity. Nevertheless, physical activity is important for both physical and mental health. This was precisely what many had experienced at various times. One participant became very tired throughout the working day and used the walk to relax.

When I return home after work, if I can just manage to get out and walk for about an hour, I feel so much better when I get back in. Even if I get physically tired, I manage to clear my head'.

Another participant said the same about physically heavy work.

I feel that I manage to 'clear my head' a little when I do physical labor. It was so nice on the farm, that we stepped outside to work with spades and timber, among other things.

For some, a short walk could make the entire day feel a little better because they had managed to be outside.

I really enjoy going for walks, but I am really bad at doing it by myself. I therefore tend to go together with a buddy, so we go for a walk to town, grab a coffee, and walk back. The effect is enormous on those days.

The participants also spoke of physical activity in the form of gardening and farm work—that they did it while at the farm and in their own garden at home. They emphasized the psychological rewards and the positive emotions resulting from the work.

I have had a vegetable garden at home that withered significantly, but now I have managed to clean it up and sow a little. It is so nice to have something to do when you are not able to do much else and to see it bloom and grow.

This participant had taken inspiration from her stay at the farm to return to gardening at home, and this was echoed by others. Gardening was described as a way to disconnect from everyday life, similar to taking a walk. Gardening provided an opportunity to let one's thoughts wander and helped the brain to relax.

The work completed on the farm, in the forms of both gardening and manual farm labor, was connected to a sense of community. Participants commented about the good conversations, in which they were able to resolve multiple everyday challenges, that occurred during gardening. One participant described this as follows.

We were stacking the timber, putting up some fences, planting some bushes, and some other small tasks. It was mostly cozy work or work that everyone could do. You did not need anything special, you could just do it and enjoy yourself, get away a little and put your thoughts away. And you were doing it together with others, and that was positive.

The participants mentioned the joy of seeing plants bloom, caring for them, and seeing them grow. They emphasized that this was something they accomplished together and that the collaboration led to results.

To sow, water, and fertilize, and see it grow. That was so nice to do and to play with together.

The participants were in different stages of fatigue and experienced physical activity differently; therefore, some required greater physical

challenges.

On my part, I wish that there was room to also do heavier farm work. Even though I saw others did not have that much energy, some of the others and I were more physically active and could handle more. To caress and water plants was not exactly my cup of tea. I was stacking timber and planting bushes, which was alright, but I am used to physical work, so that was not particularly challenging.

3.4. Hope for the future

The participants shared their thoughts that the stay had given them hope that it would be possible to live with fatigue.

I think that you learn about and adjust to your fatigue, and plan your life accordingly.

Participants also noted how the stay had contributed to a better sense of control over and understanding of fatigue.

It was so good to be reminded that you can stop for a while, as this is often lacking in everyday life. Everyone around you is pushing you—at work, at the Norwegian Labour and Welfare Administration, and yourself. It is good that someone makes you stop and relax. To meet others and obtain a better understanding that one cannot do it all, through seeing others struggle with the same, is important. To have control and be able to calm down.

The participants noted that control is an important element of their thinking about the future.

I have learned that I have to divide my activities. I have a cute garden that I am really fond of. In the past, I would have thought that I could work in the garden for three to four hours, but that is not possible anymore. Sometimes, I set an alarm on my phone so that I will remember to take a break because I think it is so nice and relaxing to be working out there. But I must take actions, such as setting the alarm, to avoid ‘hitting a wall.’

Many spoke of plans and things they wanted to do; they focused on possibilities rather than restrictions.

Now that I have become conscious about splitting my energy, I feel that I will be able to handle fatigue better. I think it is about becoming more comfortable with the situation you are in, because if you are more comfortable with yourself, you can function better.

By being more conscious about how they plan their days, the participants felt they can now do things that were previously impossible. One participant wished to complete a long hike between cabins in the mountains, and another wished to return to her previous social life.

I hope that if I do the right things, and not overdo things, that I will become increasingly better over time. That is the goal. I hope that I will at some point be able to get back to the life I used to live, both socially and in terms of work.

By talking to others and seeing what they could achieve in their daily life, the participants believed that they may become well enough to do more themselves.

I have to be much more conscious than before of how I plan my days, because I have less to give. There is so much that I hope eventually to be able to do again. By looking to some of the others, I find hope that I will can get to a point where this is possible.

Only three of the eight participants were working, but most of the others expressed hope that they could return to work.

At this point, it is about using all of my energy on what is important, which is keeping my family together and making it work. After some time, I might

find more energy, and the kids will need less. Perhaps then, maybe in three years, or five or ten years, I can start working a little again.

Those who had already returned to part-time work described challenges for the future.

I currently work in a 50% position and this has remained stable for two years. I have periods where I have tried to work more, but I have not been able to do so. At this point, it is really a challenge to maintain my 50% position.

A significant challenge for most of the participants was the need to avoid becoming exhausted and to slowly start to build themselves up again.

I have a long way to go before I can start to think about returning to work, but I feel that this stay has contributed to an increase in my quality of life and to creating a good life. That is the most important part. This stay has helped me function in my everyday life. If I manage to have a good life on a daily basis, that will help with my depression and anxiety, and slowly move me in the right direction.

The participants had experienced some difficult years after they became cancer-free, and they emphasized the impact of staying at the farm shortly after entering remission.

I think that if you are brought into such a system early, before the depression and anxiety and all that, you would have had a great return from it. To be able to get together with others who are in the same position as yourself. What I was told for the first two years was that I should be happy if I survived. If I had been to a course like this at that point, perhaps I would have accepted that response in a different way, and things may not have progressed to the point where I had to claim disability benefits. Perhaps I would have been able to work 40% or 50% at this point.

4. Discussion

The purpose of the present study was to investigate the responses to a specially designed green care intervention for patients experiencing CRF. The patients perceived the farm as a sanctuary, a free space. They did not separate the different parts of the stay from each other, but emphasized how the surroundings, activities, and relations with others were all part of a whole. The patients talked most about the social fellowship they experienced by being in a group with patients struggling with the same issues. They also highlighted the important role of the coaches (employees), whom they thought were inspiring and encouraging. The participants believed they had received many useful tips for improving their daily life from each other and the coaches, as well as through the lectures delivered by the experienced researchers. The activities were described as “energy boosting” and “meaningful.” Their stay on the farm had given them hope for the future and, for some, a desire to work again.

The interaction and synergistic effects of the farm’s components have been reported in a review of green care services in the Nordic countries [14]. The results of the present study also indicate that social fellowship, experienced as exchange, acceptance, and understanding from other participants, was crucial to the participants’ positive experience of their stay. A review from 2015 [14] also reported the importance of social fellowship and noted that social gains are vital. Meeting people in the same situation and experiences facing similar challenges was reported as positive, as the participants could share experiences and be accepted for who they were. A review of CRF and possible interventions [8] also found that all interventions had the strongest effect in a group setting. The feeling of being alone is replaced by feelings of acceptance, support, and understanding [24]. Some participants also found it rewarding to be able to help others, to share their experiences, and to be able to support those who had more severe fatigue.

The participants in the present study highlighted the important roles of the coaches/employees. In a study from 2012 [25], the patients attending a green care farm described the farmers/employees as significant important others. Participation in green care services has been shown to have positive effects on mental well-being, self-acceptance, and self-insight, and to help induce a positive attitude [14]. This may explain why the participants in the present study perceived that their stay gave them confidence and made them more optimistic about their future. This optimistic attitude gave them hope for a better future, and some of those who were not working hoped to be able to return to work. One study has reported an increased rate of return to work after experiencing occupational value in a green care setting [26]. The ability to work is important to the quality of life (QoL), and a study shows that cancer survivors who work continuously function better and have better health and QoL than those who are unable to work [26].

In the present study, education was one of several components of the farm stay. The participants claimed that the lectures were useful and helped them cope with CRF. The lectures addressed different topics relevant to CRF and a healthy lifestyle in general. A review from 2016 [9] found that educational interventions may have a small effect on CRF. However, the authors concluded that educational interventions on their own are unlikely to reduce fatigue optimally or to help people manage its impact, and thus should be considered in conjunction with other interventions; this was also experienced by the participants in the present study.

The participants in the present study registered their activities and were coached in choosing activities that would be beneficial to them. They participated in different forms of physical activity during the stay, such as working in the garden, collecting wood, and going for walks. Physical activity and exercise have been shown to reduce fatigue in patients experiencing CRF [6–8,27]. The participants in the present study considered it important that the activities were performed in beautiful surroundings and together with others. By working outside in a natural environment together with others, the participants found it easier to share their experiences and talk about their life challenges. Sharing experiences was highlighted as very satisfactory.

Several studies have shown that nature is experienced as a rewarding and supportive environment [14,28]. The concept that nature has a therapeutic effect is often linked to the Biofile hypothesis [29], which claims that humans have biological ties to nature for evolutionary reasons. The aesthetics of nature captures our attention in a comfortable way by creating frames for deeper reflection [30]. Studies have shown that being in a natural environment allows the brain to recover and makes it easier to cope with stress [31]. Even short walks in a natural environment have measurable positive effects on negative thoughts. There is significantly lower activation in the prefrontal cortex (the part of the brain that plays an important role in worrying) in people who have stayed in green surroundings compared with those who live in urban areas [32]. Natural surroundings can also have positive effects such as reducing blood pressure, heart rate, and cortisol levels in the blood [33]. The animals on the farm were not mentioned specifically as important for the participants in the present study, as has been reported in other studies of green care [14], but were a part of the experience as a whole.

4.1. Strengths and limitations of the study

To establish trustworthiness in this study, we used the criteria to assess trustworthiness and integrity in qualitative studies of Lincoln and Guba [34]. A small qualitative study like ours can be strongly influenced by each of the participants, by the special features of the employees at the farm, and by the farm itself. We attempted to ensure transferability of the findings by providing fully descriptive data about the setting (the farm), the selection and characteristics of the participants, and the processes for data collection and analysis. Our findings were discussed by, and we achieved consensus between, all co-authors, who represent

different professional backgrounds in medicine, public health, sports science, and nursing. We consider these different professional backgrounds to be a strength by enabling us to consider the data from different professional viewpoints. We obtained clear descriptions from the participants, and their perspectives were represented here as clearly as possible to achieve credibility and confirmability. Authentic citations were used to increase the trustworthiness of the study, and quotes from all participants are presented in the results. It is likely that the context may have affected the experiences of the participants in this study; however, the participants' experiences of the context (farm) were a part of the study. Different results may have been obtained at another farm at another place. However, the findings of this study harmonized with those of previous research, and we conclude that our findings may be transferable to others in similar contexts.

5. Conclusion

Cancer survivors with CRF experienced participating in a specially designed rehabilitation green care farm intervention as helpful for their coping with CRF. The patients' experienced the farm as a sanctuary where the surroundings, activities, and relationships with others were perceived as part of the whole experience. They felt that social fellowship developed by being in a group with other patients struggling with CRF gave them feelings of acceptance and hope while allowing them to share their experiences. The participants reported that they were inspired and encouraged by the coaches and that they had received many useful tips from other cancer survivors, the coaches, and the lectures delivered by experienced researchers for improving their everyday life. The activities at the farm were described as "energy boosting" and "meaningful," and their stay at the green care farm had given them hope for the future. These findings support other studies claiming that a multidisciplinary approach that includes several intervention components may be the best way to help patients experiencing CRF. Further research is needed to determine whether the recovery experienced by patients lasts and whether they will be able to return to work.

Declaration of competing interest

The authors have no conflict of interest to disclose.

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