

ORIGINAL RESEARCH ARTICLE



Stakeholders' perceptions of value of nature-based interventions in promoting health in people with stress-related illness: a qualitative study

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ABSTRACT

Stress-related illness is a common and increasing cause for sick leave in Sweden. Spending time in nature reduces stress and promotes health and well-being. Accordingly, nature-based interventions (NBI) for people with stress-related illness have been developed and implemented in southern Scandinavia; however, such interventions are uncommon in the Circumpolar North. Previous studies have examined the effects and experiences of participating in NBI, but research about different stakeholders' perspectives on NBI is lacking. The aim of this study was to explore different key stakeholders' perceptions of the value of NBI in promoting health in people with stress-related illness. Data were collected through semi-structured interviews with 11 persons with stress-related illness experience, 14 healthcare professionals, and 11 entrepreneurs offering NBI. Qualitative content analysis resulted in four categories: *Providing opportunity for recovery*, *Offering new perspectives and opportunity for reflection*, *Empowering balance and control in life*, and *Enabling one to overcome barriers*. Although the study was conducted in a region where NBI is not widely implemented, the different stakeholders expressed similar perceptions of the value of NBI, indicating that NBI may be a valuable complement to health care which reaches people with stress-related illness needs and promotes their health.

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Introduction

Globally, mental illness is widespread and a leading cause of years living with disability. It is more common in high-income countries (with a prevalence of 13% globally compared to 14.2% in Europe), and it results in major economic consequences, not least due to loss of productivity [1]. In Sweden, mental illness causes more than half of all long-term sick leave cases, and stress-related illness is the primary cause [2]. Specifically, exhaustion disorder – a stress-related illness due to long-term exposure to stress without sufficient opportunities for recovery [3] – accounts for a large and growing proportion of sick leave cases [2].

Contact with nature reduces stress and promotes health and well-being through its restorative qualities [4]. When people spend time in nature, their physical measures of stress reactions and self-reported experiences of stress decrease [5]. Accordingly, nature-based interventions (NBIs) have been developed to promote health in people with (among other things) stress-related illness. NBIs occur in supportive natural environments, where participants are

involved in meaningful activities guided by a leader. It can involve farmwork (including contacts with animals), gardening, or activities in nature – mainly in forests – which may result in increased physical activity and positive effects on mental health [6]. One systematic review shows that NBIs for people with or without stress-related illness reduce stress and increase well-being and quality of life [7].

Evaluations of NBI programmes reveal positive results, including improved quality of life [8], improved health [9] and improved work ability [10,11]. A review of studies on NBI for people with stress-related illness Johansson et al., [20] shows that, in addition to reduced stress and improved well-being, NBIs strengthened self-efficacy and supported participants in achieving balance in everyday life. Participating in an NBI also reduces physical symptoms of stress and results in reduced need for health care and decreased sick leave. Bergenheim et al. [12] have found that people with stress-related illness who participated in NBI experienced calmness and joy, gained new insights, and underwent personal development.

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While NBIs for people with stress-related illness are implemented in some southern regions in Sweden, such interventions are rare in the northern regions. This study is a part of a larger project, the New Nordic Nature Based Service Models (Nordic NaBS), which aimed to develop NBIs which are suitable for northern nature conditions and to promote co-operation among entrepreneurs who offer nature-based services and healthcare [13].

Involving the private sector in health promotion can be a way to modernise health care models and to use resources more effectively, by relieving some burden on public healthcare. However, implementation of innovation, new services, and co-operation between private enterprises and healthcare is not easy [14,15], which is related to (among other things) the fact that different stakeholders are involved, with different perspectives and needs. Key stakeholders in such cases can include private enterprises, healthcare organisations (i.e. healthcare professionals), and end users (i.e. people with illness). It is important to take part of their different experiences and knowledge in order to develop services which create value to all key stakeholders [16]. Involving stakeholders in the planning and evaluation of new services is a way to create successful and sustainable services which are meaningful and create value for people, society, and the environment [17].

In summary, previous studies have examined the effects of NBI and how people with stress-related illness experience participation in NBI. However, research on the perceived value of NBI from several stakeholders' perspectives is lacking. Increased knowledge and understanding of the perceived value of NBI in promoting health in people with stress-related illness may enable the development of sustainable NBI services. In addition, it may facilitate co-operation between different stakeholders, such as healthcare professionals and entrepreneurs offering NBI services, with the goal of increasing the accessibility of NBI services to people with stress-related illness. Therefore, the aim of this study was to explore different key stakeholders' perceptions of the value of NBI in promoting health in people with stress-related illness.

Methods

Study design

A qualitative descriptive study design was used to investigate participants' perceptions about the value of NBIs. Qualitative research is appropriate when the focus is describing and understanding people's "insider" perspective of a phenomenon in a real-life context [18].

Multiple perspective interviews were conducted to facilitate a more comprehensive description from different viewpoints [19]. Data were collected through semi-structured interviews and were analysed using qualitative content analysis.

Study setting

The study took place in the context of the New Nordic Nature Based Service Models (Nordic NaBS) project in 2019–2022. Entrepreneurs offering or planning to offer NBIs and healthcare professionals were invited to participate in workshops, seminars, webinars, pilot projects, and study visits during the project, with the aim of developing NBI and promoting co-operation [13]. The study was conducted in a region in northern Sweden where the implementation of NBIs is limited; therefore, few of the participants in the study had their own experiences of NBI. The climate and natural conditions in northern Sweden are different than those in southern Scandinavia, where NBIs are implemented and studied to a greater extent and which often involve garden-related interventions [20]. In northern Sweden, short summers and long, cold winters may mean that other NBIs are more appropriate.

Procedure and participants

Three groups of stakeholders were included in the study: people with stress-related illness, healthcare professionals, and entrepreneurs offering NBI. People who had experienced stress-related illness were recruited in one of the pilot projects of the Nordic NaBS project and through advertisement in newspapers (community information) which were distributed to every household in the region in February 2021. For this group, inclusion criteria were people 18 years or older who had experienced stress-related illness. For healthcare professionals, the inclusion criterion was meeting patients with stress-related illness at their work; these were recruited from among the participants in the Nordic NaBS project and from healthcare centres in the region between autumn 2019 and spring 2021. The heads of primary healthcare centres were contacted, and they granted permission to inform employees and provided the contact information of healthcare professionals meeting patients with stress-related illness. Then, the healthcare professionals were contacted and asked to participate in the study via email or telephone at their workplace. For the entrepreneurs, the inclusion criterion was currently offering or planning to offer NBI services; these were recruited from among the Nordic NaBS project

participants between autumn 2019 and winter 2021 and were contacted by email or phone.

People who were interested in participating contacted the first author by telephone or email and were given oral information about the aim and procedure of the study; then, they were sent written information – including the consent form – by post. The consent forms were signed and sent back to the first author. Participants in the study consisted of 11 people with experience of stress-related illness, 14 healthcare professionals, and 11 entrepreneurs currently offering or planning to offer nature-based services. The characteristics of the participants are presented in Table 1.

Data collection

Semi-structured interviews were conducted during the period autumn 2019 to spring 2021.

Most of the interviews were conducted as individual interviews ($n=32$), although two were conducted as pair interviews—one with healthcare professionals working at the same healthcare centre, and one interview with two entrepreneurs working together. The interviews were performed via the Zoom e-meeting service or over the telephone, mainly due to the COVID-19 pandemic. The interviews conducted from autumn 2019 until the start of the COVID-19 pandemic were with entrepreneurs and healthcare professionals in the Nordic NaBS project and were performed via Zoom or

over the telephone, due to the long distances between the interviewers and the participants.

Because many participants did not have experience with NBI, they were given an oral description of NBI during the introduction to the interviews. Thereafter, the interviews were conducted using interview guides with open-ended questions [18], with a guide for each group of stakeholders. The same topics were covered in the interview guides for all three groups of stakeholders, but the questions were formulated in slightly different ways (see Table 2). The interviews lasted 28–100 minutes, and they were audio-recorded and transcribed verbatim.

Data analysis

The transcribed interview texts were analysed using qualitative content analysis, in accordance with Lindgren et al. [21]. Data analyses were conducted separately for each group of stakeholders, resulting in three separate analyses. NVivo software (version NVivo R1(2020)) was used to facilitate the coding and categorisation process. First, the data from each group was read in its entirety, to get a sense of the content. Then, meaning units (i.e. parts of the text which answer the overall research question) were extracted and coded, to form a description close to the original text. After that, the codes were categorised in several steps, to bring meaning units together based on similarities and

Table 1. Characteristics of the participants.

	Persons with experience of stress-related illness ($n=11$)	Healthcare professionals ($n=14$)	Entrepreneurs offering NBI ($n=11$)
Gender			
Female	10	13	8
Male	1	1	3
Age (in years)	33–59	46–70	29–61
Experience of participating in NBI			
Yes	2		
No	9		
Sick leave (current or previous)			
Yes	7		
No	4		
Occupation (more than one option is possible)			
Conversational therapist		8	
Occupational therapist		5	
Rehab coordinator		5	
Curator		3	
Nurse		2	
Physiotherapist		2	
NBI service			
Ongoing NBI service			6
Planned NBI service			5
Type of NBI service, either planned or ongoing (more than one option is possible)			
Farm with animals			7
Forest			7
Gardening			3
Education in health care			
Yes			2
No			9

Table 2. Semi-structured interview guide.

Interview questions
Please describe ...
... your experience of how nature has affected your health and well-being during periods of your stress-related illness?/ ... how you think nature may affect the health and well-being of people with stress-related illness?
... the benefits you think being in nature may have for you/people with stress-related illness?
... the disadvantages/risks you think being in nature may have for you/people with stress-related illness?
... how you think the environment where an NBI take place could affect you/people with stress-related illness?
... how you think NBI activities could promote health for you/people with stress-related illness?
... how you think contact with animals could promote health for you/people with stress-related illness?
... how you think support from a leader in an NBI may promote health for you/people with stress-related illness?
... how you think contact with others in a similar situation in the context of an NBI could promote health for you/people with stress-related illness?

differences in content. This resulted in the final categories for each group, which answered the aim of the study. The final categories in the analyses of each stakeholder group were compared and were found to be similar to each other; therefore, they were synthesised and presented as final categories covering all groups of stakeholders. During the analysis data were assigned different colours for each stakeholder group to facilitate triangulation to explore similarities and differences between the diverse stakeholder groups within each category. Converging, complementary and diverging perceptions between the groups of stakeholders are specified in the presentation of results and illustrated with quotes from each group (Vogl et al. [19]).

Ethics

The study was approved by the Swedish Ethical Review Authority (Dnr 202,000,759). Participants received oral and written information about the aim and procedure of the study. The voluntary nature of participation and the right to withdraw from the study at any time were emphasised. Participants signed a written consent form before the interviews. The recorded interviews and the transcripts thereof are stored on password-protected computers, accessible only to the authors. Consent forms including personal data are locked away, separated from the interview data. Confidentiality was guaranteed in the presentation of the study results.

Results

The analysis of the interviews resulted in four categories: *Providing opportunity for recovery*, *Offering new perspectives and opportunity for reflection*, *Empowering balance and control in life*, and *Enabling one to overcome barriers*. When a result applies for all groups of stakeholders, they are referred to as “participants”.

Providing opportunity for recovery

Nature and NBI were understood to be of great value in meeting the need for rest and recovery in people with stress-related illness, as the tranquillity in nature was described as helpful for unwinding. Nature was experienced as calming by all participants with experiences of stress-related illness. Getting away from the everyday environment by participating in NBI was thought to reduce stress. The slow pace and silence in nature, with fewer stimuli to act on, were described as promoting recovery. According to participants, NBI should be undemanding, without any focus on performance.

Without mobile phones or being connected [online], but just being. Sometimes it can be important to get away. (Person with stress-related illness 7)

To get out into nature to leave the usual environment where there is a rat race... you have to break it in some way...I think it can be good to leave home. (Healthcare professional 11)

It is a permissive environment, where you are not influenced by so much else. There are not so many other places where you have the opportunity to just be. No need to give, but to actually just be. (Entrepreneur 6)

Participants felt that people with stress-related illness were helped with being in the present through sensory impressions from nature, which stimulate all their senses in a calm manner. Changes in nature according to the seasons were appreciated. Silence – whether getting away from noise in cities or just sitting and watching a fire – was described as promoting relaxation.

I've spent my whole life running around with headphones and listening to music. But after the last time [with exhaustion disorder], I realise that it's just that silence, some bird that calls in the background and... That's what makes you calm. (Person with stress-related illness 3)

There's something in nature that stimulates this presence, whether we call it mindfulness or whatever. We

use all the senses; it becomes very natural to be in that state, which we might be trying to reach with different apps or so. (Healthcare professional 10)

During forest bathing, I introduce the people to opening their senses. I guide them to start listening and feeling, that they should open all their senses apart from their sight, which we usually use. (Entrepreneur 1)

The great value animals can add to NBI was emphasised by entrepreneurs, as animals bring people into the present. Focusing on an animal and the tactile feeling of an animal can be calming and reduce stress. Animals were also described as inducing feelings of trust and allowing people with stress-related illness to relax; since animals validate people as they are, this may be less demanding than interaction with other people. However, not all participants with stress-related illness were interested in animals. In general, activities in NBI were understood to promote being in the present by doing something undemanding and concrete with the hands, such as simple tasks on a farm, and seeing something growing when gardening yields positive feedback.

To see something grow, take care of it and so... Put in some time and energy, you are very much in the moment when you do such things. (Person with stress-related illness 6)

With animals there is a feeling of a meeting. The warmth of the animal and the fur... you feel that you get a response and that you are also doing something good for the animal. It's a give-and-take, which I think is important. (Healthcare professional 6)

It can be quite nice to feel that somebody [an animal] appreciates your care. (Entrepreneur 10)

Nature and NBI were perceived as promoting well-being by helping people with stress-related illness find joy and happiness through the opportunity to just enjoy themselves. Participants described nature as having a healing power, as it gives a respite from everyday routines – a respite which offers people with stress-related illness the chance to regain energy. Some participants with experience of stress-related illness expressed a strong desire to be in nature and to spend more time in nature than before their stress-related illness; while they took nature for granted before, they now saw the advantage of it.

If you want to call it a healing power or calming effect... Being out in nature provides more than just being outside... it gives you energy. (Person with stress-related illness 1)

Almost everyone I meet and talk to in my role... when I ask them what makes them feel good? "Well, I feel

good when I go out in nature". (Healthcare professional 13)

It's very individual, but it's about looking at the whole picture. Both body and mind should feel good, feel that you are happy. (Entrepreneur 7)

Offering new perspectives and opportunity for reflection

One way NBI was described as being valuable was that the possibility to be disconnected from ordinary everyday life provides time for reflection. When people with stress-related illness get distance from their situation, it becomes easier to gain an overview, which offers new perspectives which may make problems feel less heavy. Some participants with stress-related illness described nature as a meditative place which calms their thoughts and makes it easier to let go of stressful thoughts. Stimulation of positive and creative thoughts was mentioned, as nature and animals give a person something else to think about when they would otherwise easily get stuck in negative thoughts. However, according to some healthcare professionals, some might be overwhelmed by thoughts which are given space.

When I'm in nature, I get more distance from what I'm brooding about or feeling bad about. It creates some distance; I can look at it more objectively, and then the problems don't feel as heavy. It's like nature gives some air in the thoughts and in the soul. (Person with stress-related illness 8)

Some people think it's hard when the thoughts get free rein. They try to stifle it with music or something like that, but if they go out into the forest, they may end up in thoughts about their situation, and it can be overwhelming. (Healthcare professional 9)

He [one participant in NBI] just needed time in a quiet environment to think... time and place to think and listen in tranquility. (Entrepreneur 11)

Nature and NBI were believed to have value in terms of regaining some context in life, as people with stress-related illness may be prompted to think from a broader perspective and feel that they are part of something much larger. Nature was described as promoting a feeling of being grounded, a sense of coherence, because nature is our origin. According to the participants, symbolism connecting processes in nature and in life are highly valuable: the rhythm in nature can be used to express and understand one's feelings and needs in life – seasonal variations can be linked to changes in life, and plants can symbolise growth and lead people to reflect on their needs.

I experience it as feeling more rooted in some way and grounded, that I am a bit more in touch with myself. (Person with stress-related illness 8)

We humans, in a way, come from nature. We are close to nature, we need nature, it's a basic need we have. (Healthcare professional 5)

Plants can to a great extent symbolise growth. What do I need in order to grow? I need to take care of this seed, so I also need to take care of myself; I need to give myself space and I need to nourish myself, and so on. (Entrepreneur 4)

In NBI, value lies in people with stress-related illness supporting each other and sharing their experiences with others with similar experiences, which makes them feel that they are not alone in their situation. However, participants also indicated that there may be a risk that group members pull each other down by focusing on negative thoughts. In order to support social contact among participants in NBI, it is important that they feel safe and confirmed in the group through a permissive, non-judgemental approach.

It is probably that it is both... that you can hear others, feel that you're not alone, and that you strengthen each other. But there can also be a disadvantage in that you can get stuck in the negative... (Person with stress-related illness 2)

We need others ... to exchange experiences and see that it is not only me who is affected. Exchange of experiences, support, creation of new relationships, those are very important. (Healthcare professional 2)

I've also noticed that people with stress-related illness may pull each other down by talking about what is difficult and negative and so on, and that's not always good. (Entrepreneur 1)

It was thought to be easier for people with stress-related illness to open up by talking about neutral subjects, such as nature, and not focus on their health. According to healthcare professionals and entrepreneurs, nature and the outdoors is a more permissive climate for holding conversations compared to in a room indoors – especially around a fire, which makes it easier to take one's time and let things be quiet. Some participants with experience of stress-related illness emphasised the importance of opportunities to be alone in silence during an NBI, and some healthcare professionals thought that group activities may be difficult for some people with stress-related illness.

If somebody wants to be alone or somebody wants to do it [activities] by themselves, then you should be able to do it. (Person with stress-related illness 10)

I believe that something happens... the integrity is not as strong when you are out in nature, but you can talk to each other in a way that you might not do if you... [were in a room indoors]. (Healthcare professional 7)

It is a more permissive climate to have conversations outside compared to in a room. If it gets quiet, the gaze often falls onto the fire. (Entrepreneur 2)

Empowering balance and control in life

NBI was described as having great value in terms of strengthening the resources of people with stress-related illness to promote their own health, by providing them with tools to recognise signals of stress and to handle challenges in everyday life. NBI was understood to inspire people to spend time in nature, which in turn leads to being physically active. This, together with fresh air and daylight, was described as promoting a daily rhythm, improving sleep, and reducing anxiety and depression.

You may find tools that will help you find a balance within yourself again It's not just there and then, but you build your toolbox to have tools for the future, the rest of your life. (Person with stress-related illness 5)

It [NBI] can be an eye-opener—that there are so many other things that provide energy than working a little too hard. Showing other interests, other parts of life that can give a silver lining and energy. (Healthcare professional 12)

To be able to recognise signals in oneself, for example, when stress is too great or before it becomes too great, to promote one's own health. (Entrepreneur 3)

One reason participants expressed that NBI was valuable is its empowerment of people with stress-related illness by encouraging them to have faith in their own abilities. According to entrepreneurs, by succeeding with tasks like being able to handle a horse or by challenging themselves to overcome a fear of animals or of being in a forest, participants in NBI strengthen their self-esteem and self-confidence. NBI was seen as providing people with stress-related illness new strategies to achieve balance between demands in life and their energy, strategies which promote taking control over their situation.

To get a sense of control and a feeling that I can somehow get through this because you see the progress through this... and the support you get ... I think it provides so much more than medication. (Person with stress-related illness 9)

They feel that they have succeeded in something by being outdoors It is also about avoiding helplessness, because they can do it themselves. (Healthcare professional 4)

Above all, to strengthen people's self-confidence to dare to do things and dare to trust themselves.... You try to push and encourage. (Entrepreneur 5)

An experience of well-being in nature was described as giving hope that one could be able to promote their own health. Nature and animals had been important to finding and maintaining balance in life for several participants with experience of stress-related illness. However, spending time in nature may also generate stress if they feel they do not have the time or because it may take some effort to go out. Healthcare professionals thought that NBI make people with stress-related illness aware that activities which take energy can also give energy.

You have nature, and you have your strategies to feel good, so I have nature as part of my rehabilitation plan. (Person with stress-related illness 2)

You learn new strategies; you get new knowledge about yourself and what you should do to find balance in life. ... I believe that it has a more sustainable long-term effect than medication.... You find new strategies to take with you when the NBI is over. (Healthcare professional 1)

It is important to find your own way to feel good in order to promote well-being.... It looks so different for everyone. (Entrepreneur 9)

If the health-promoting value is to remain, the tools people with stress-related illness develop in NBI should be implemented in their everyday life so they can establish new healthier habits. NBI was believed to motivate and support people with stress-related illness to make conscious choices and start making some changes in their lives. Changes in small steps should be encouraged, as too-big changes may be hard to manage, according to healthcare professionals and entrepreneurs. Because it may be challenging to maintain a lifestyle change, support in planning how the person with stress-related illness should continue after the NBI programme, together with follow-ups, was seen as helpful.

When you feel that you are enjoying yourself... then that's something you want to do again and try to bring into everyday life You can continue on your own with your own forest bathing, so you get that routine. (Person with stress-related illness 4)

It is important to continue, to plan for these activities .. It has to be included in everyday life. If you leave the person like "now it's finished, good luck", then there is a risk that they fall back to the way it was when they became ill. (Healthcare professional 3)

I want to give them [people with stress-related illness] tools when they leave the farm, to take with them, to try at home. (Entrepreneur 1)

Enabling one to overcome barriers

NBI is valuable because it encourages and inspires people with stress-related illness to go out into nature and to try new activities, according to participants. It was described as a threshold to overcome, which may be difficult to achieve on their own. NBI was seen as helping people with stress-related illness get started if they are not able to plan and carry out activities by themselves due to lack of desire and energy. Even if some participants with stress-related illness had been advised by healthcare professionals to be in nature, it could be hard to find motivation, and it may feel like an additional demand.

I get advice that I should go out and walk ... but I don't have the energy to do it myself. I would have been helped by being able to go to something organised—if I had been told to go to a place at a certain time and someone had already planned what to do. (Person with stress-related illness 6)

Some become afraid to do things, afraid of every little stress reaction in their body. Then it's a big project to put on clothes and go out. (Healthcare professional 10)

You often put up more excuses during the winter. It's cold or it's snowing, I'm not going out. If it's summer, you do it more easily, but if you [participants in NBI] are able to break these barriers even during the winter, you may see the possibilities during the winter too. (Entrepreneur 2)

Participating in NBI was described as supporting people with stress-related illness in finding their way back to activities in nature they enjoyed before their illness. Although many people with stress-related illness used to spend time in nature before their illness, leisure activities are often not prioritised when stress increases in their lives. Participants described how NBI can also be a way to make people who are not used to being in nature more comfortable with it. Participating in an NBI can feel safer when being in a group with a leader, as people may be afraid of animals in nature, and some women are afraid of being attacked. Participants felt it was helpful to offer satisfactory equipment to keep warm, as some weather conditions may be a challenge; this can make it comfortable for participants in NBI.

You may not be used to spending time in nature, so then you may build up obstacles for yourself—I don't know where to go and what to do. But you don't have to do so much in nature. Having a guided activity can be nice. (Person with stress-related illness 11)

Some are afraid of bears, they are afraid of animals, that they will be attacked. (Healthcare professional 1)

Most of them have spent a lot of time in nature before, but they lost it when they got exhausted To find their way back to nature was a too big step to take on their own. (Entrepreneur 1)

NBI was believed to have value because it makes people with stress-related illness feel involved and helps them avoid isolation and sedentary behaviour. Participating in NBI was thought to support people who have been on sick leave for a long time due to stress-related illness, helping them find some routine in everyday life.

You can start quite simply, but you at least have something to get up for that day, or you have someone waiting for you. It can really be crucial for many, I think. (Person with stress-related illness 9)

I think that what's important is to get these people [with stress-related illness] in some kind of context. Hopefully with something they want to do themselves, to avoid becoming sedentary. (Healthcare professional 15)

They [people with stress-related illness] may be quite trapped in themselves and cut off from the outside world. (Entrepreneur 8)

A value in NBI lies in participants with stress-related illness feeling safe when the leader is confident in the environment and is in control during activities. According to participants guidance by a calm and pedagogical leader who clearly explains activities was described as helping the participants feel confident and be able to practice activities in nature on their own later.

That person [leader in NBI] should be safe, stable, and calm, and help you to somehow land there in the place where you are. (Person with stress-related illness 4)

To be guided [in NBI] is a little different than going out alone. It may be needed. ((Healthcare professional 5)

An important part is to help [participants in NBI] understand nature, so they feel calm and not afraid The forest can become a stressful environment if you do not understand [it]. (Entrepreneur11)

Discussion

This study aimed to explore different key stakeholders' perceptions of the value of NBI in promoting health in people with stress-related illness. The results show that NBI was perceived to provide an opportunity for recovery and reflection and to offer new perspectives in life. Furthermore, nature and NBI were thought to empower people with stress-related illness to achieve balance and

control in life as well as to enable them to overcome barriers.

According to the results, calmness in nature was thought to be of great value for providing rest and recovery. In a concept analysis, Asp [22] describes rest as experiencing harmony in feelings, actions, and motivation, which allows a person to perform actions with pleasure. Rest occurs when the environment corresponds to a person's needs, such as undemanding contexts in which a person can let go of responsibilities and demands. Stimulating and pleasant sensory impressions, such as those found in the beauty of nature, can help people be in present and experience rest. In addition, engagement in creative or restful activities without obligation provide joy and energy and are an important form of rest. Bernhofer [23] describes rest as a human need, a beneficial state which is intentional, and in which work or stress cease or are minimised. Rest may involve activity and is affected by the environment. The benefits of rest are comfort; healing; restoration of body, mind, and spirit; improvement in physical and cognitive function; and restoration after cognitive and emotional stress. The results in this study indicate that nature and NBI can offer such an undemanding environment, calmness, and activities which encourage people with stress-related illness to be in the present.

Contact with animals was perceived as a significant value of NBI, according to the results in this study. Friden et al. [24] found that equine-assisted group intervention (EAI) for people with (among other things) stress-related illness facilitates recovery. Activities with horses help people to be in the present, which reduce stress, help with unwinding, and promote feelings of calm and harmony. The review of Beetz et al. [25] reveals that human – animal interactions decrease stress and improve mental and physical health. Activation of the hormone oxytocin plays a significant role in explaining the positive effects; contact with animals – such as the sensory stimulation of touching and stroking an animal – increases the level of oxytocin, which has anti-stress effects and promotes restoration.

Participants in this study perceived that spending time in nature can provide a sense of being grounded and being part of a larger context. According to Grahm et al. [26], the health-promoting value of nature is described as the experience of calm and connection. They emphasise oxytocin's significance in reducing stress, increasing well-being, inducing healing effects, and promoting feelings of affinity with nature, which may lead to a sense of belonging and trust in oneself and in nature. This, in turn, can promote personal development, reorientation, and the discovery of new coping strategies. Nature possesses an inherent

power – movement showing life and change, but at the same time calmness and stability. Nature may convey feelings of comfort, hope, and perspective in life. Time in solitude and tranquillity in nature seem to facilitate the experience of calm and connection [26]. This study demonstrates that participants found it important to have opportunities to be alone in nature, even if NBI is performed in a group.

These results also show that NBI was perceived to offer opportunity for reflections and new perspectives. Changing one's environment by getting out into nature and leaving the demands of everyday life allows one to let go of thoughts and provides an opportunity for reflection on one's situation in life, which can afford new perspectives and insights [22,27]. A study by Wästberg et al. [28] revealed the experience of meaning in garden therapy for people with stress-related illness. An undemanding atmosphere and feeling of safety were important to experience meaning, and tranquillity was shown to provide opportunity to get to know oneself and gain insights. A leader who is aware of participants' needs can further stimulate reflection. Being in nature is described as going "back to basics", by noticing things in nature which were taken for granted or overlooked before [28].

The results indicate that NBI in a group may have both benefits and disadvantages. According to Wästberg et al. [28], being in a group with others in a similar situation enables one to share their experiences and support others, which may help them not feel alone in their situation of stress-related illness. In addition, it may be easier to open up and talk about one's problems when doing some concrete activity with the hands [28]. In order to feel less alone, it is reassuring to meet others with similar experiences who understand each other, as people on sick leave often become isolated. However, being in a group is sometimes perceived as negative, because time in solitude and focusing on one's own recovery may be desired [24].

Symbolism between processes in nature and in life was perceived in this study as adding value. According to Adevi and Lieberg [29], an important factor in garden therapy is the interaction between symbolic and concrete activities. There is value in doing activities with a clear beginning and end and seeing a result from one's efforts. Eriksson et al. [27] found that processes in nature may stimulate symbolic thoughts, such as living plants being compared to one's own need to take care of oneself and one's personal progress during rehabilitation.

The results further show that NBI was perceived as having value in terms of helping people with stress-related illness achieve balance in their lives. Dahlberg

and Segesten [30] emphasise the importance of rhythm in life, including balance between movement and stillness. Movement is about having the ability to engage in meaningful activities and realise projects in life, while stillness means rest – but not necessarily inactivity: enjoyable activities without demand, such as physical activity, leisure activities, and spending time with others in a permissive atmosphere, can be a form of rest. In short, distancing oneself from the demands of everyday life and "just being" provides stillness. A disrupted rhythm or imbalance can lead to ill health, such as for people with stress-related illness; their rhythm in life is disrupted, and they may need support to regain rhythm and balance [30]. By listening to bodily signals, people can be aware of their need for rest. With its daily and seasonal rhythms, nature can support people in achieving a balanced rhythm [22]. Nature has qualities which provide stillness and rest, and it can be a resource for people with stress-related illness to find and maintain balance in life.

As shown in the results, NBI can empower people with stress-related illness to promote their own health. Gibson [31] defines empowerment as "A social process of recognising, promoting and enhancing people's abilities to meet their own needs, solve their own problems and mobilise the necessary resources in order to feel in control of their own lives" (p. 359). According to a concept analysis by McCarthy and Freeman [32], empowerment is a process by which people gain control over their situation, and it can be used to support people with illness by focusing more on solutions than on problems. Active participation is essential, as empowerment can be facilitated – but not created – by another person or carer. Empowerment is also used to describe outcomes such as enhanced autonomy and power to make one's own decisions. Psychological empowerment has been described as a sense of control and willingness and a power to change and act, and it is associated with self-esteem and self-efficacy. Empowerment can be a way to enable people with illness to increase their control over and improve their own health [32].

Succeeding at tasks in NBI was described as strengthening people's self-esteem and self-confidence. According to Friden et al. [24], interactions with horses can enhance the self-esteem of people with stress-related illness, provided that the leader of the activity empowers them and makes them feel safe. An EAI provided participants with useful tools for later in life, and participants experienced that EAI improved their health more than medications [24] – which was also mentioned in the current results with respect to NBI.

According to Sjösten et al. [33], healthcare professionals in primary health care view the recovery of people with stress-related illness as a complex process which requires a long-term and flexible approach. To support recovery, these professionals take a guiding approach, meaning that they involve the person with stress-related illness in order to gain insights into stress-related patterns and to achieve new recovery strategies and a sustainable balance in life. A non-judgemental and permissive atmosphere is needed to feel trust and safety during the care. Important existential elements include encouraging reflections on one's needs so as to be able to promote one's own health. Support in groups can reinforce the effect, as patients recognise oneself in others, do not feel alone, and feel understood. The person with stress-related illness is encouraged to make changes in life and to continue the process even after the end of care. Finally, healthcare professionals encourage people with stress-related illness to use nature to slow down their pace. As can be seen, the way healthcare professionals support people with stress-related illness as described by Sjösten et al. [33] is similar to the approach of NBI, which may mean that NBI can be a complement to ordinary health care.

The current results show that it can be hard for people with stress-related illness to find the motivation and strength to go out into nature and to get started with recovery activities on their own. According to Hörberg et al. [34], it can be difficult for people with stress-related illness to balance their energy, as activities can both provide well-being and consume energy. This may mean that people hesitate to take part in activities, knowing that they may be drained of energy. Support and encouragement can be needed to find tools (such as creative activities in nature) which support recovery and are helpful to achieving and maintaining balance in everyday life [34].

The results of this study show that the different stakeholders' perceptions of the value of NBI in promoting health in people with stress-related illness correspond to each other. This implies that NBI offers values which are meaningful for several stakeholders, which can make it a sustainable complement to healthcare.

Strengths and limitations

There were few men among the participants in all stakeholder groups in the study. This can be due to the fact that stress-related illness is more common among women and that more women than men work in the healthcare occupations interviewed by this study. A more heterogenous gender distribution would have

been desirable, to bring out different perspectives. In addition, it might be likely that people who are interested in and have a positive opinion towards nature and NBI were more motivated to participate in the study than those with less interest and/or negative opinions. This means that the findings may not be representative for all people with stress-related illness or all healthcare professionals.

The interview format – i.e. conducted via e-meeting and telephone – entails both advantages and disadvantages. On the one hand, it can be timesaving and convenient for both the participants and the interviewers, and it made it easier to reach participants regardless of the distances between them and interviewers, which reached up to 350 kilometres. In addition, since the participants were in their home or at their workplace during the interviews, this may have made them feel comfortable and relaxed [18]. On the other hand, one disadvantage is the absence of body language and gestures – especially when the interviews were done by telephone, which made it more difficult to handle respondents' need for silence and to understand what silence meant than in face-to-face conversations.

The transparency of the study method was strengthened by a thorough description of the data collection process, including the interview guide and of the data analysis process. A continuous discussion among the authors during all phases of the study strengthens its trustworthiness.

The study was conducted in a region in northern Sweden where NBIs are not implemented to any great extent, which meant that few participants had experience with NBI. However, the participants' have experiences of needs of people with stress-related illness and of spending time in nature why their perceptions of values of NBI can be considered to be representative and important. This may restrict the transferability of findings to other contexts. The Coreq checklist for reporting qualitative research was used to improve the manuscript [35].

Conclusion

This study contributes knowledge about different stakeholders' perceptions of the value of NBI in promoting health in people with stress-related illness. Key stakeholders perceive that NBI has value with respect to providing recovery and a new perspective for people with stress-related illness. NBI is believed to empower people to achieve balance and control in life, and it may help motivate people with stress-related illness to begin to engage in activities in nature. The study was conducted in a region where NBI is

not yet implemented; despite this, different stakeholders expressed similar perceptions of the value of NBI, which indicates that NBI may be a useful complement to health care which reaches people with stress-related illness needs and promotes their health. Further research is needed on the implementation and evaluation of NBI, preferably including different stakeholders' perspectives.

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Author contributions

GJ, JJ, ÅE and PJ were involved in study design; GJ, ÅE and PJ performed the interviews; GJ, JJ, ÅE and PJ were involved in analysis and interpretation of data; GJ, JJ, ÅE and PJ were involved in the writing of the manuscript. All authors have agreed on the final version of this manuscript.

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