



“Nature’s effect on my mind” – Patients’ qualitative experiences of a forest-based rehabilitation programme



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ABSTRACT

Aim: The aim of this study was to investigate the personal experiences and perceived effects on mind from visits to forest environments in a subset of patients with severe exhaustion disorder (ED), who participated in a randomised controlled trial for evaluation of forest-based rehabilitation.

Participants: A subsample of 19 patients with diagnosed ED, who completed the three-month forest-based rehabilitation in the ForRest project, was interviewed.

Method: The forest-based rehabilitation consisted of repeated forest visits with the main objective of spending time in rest and solitude in a chosen forest setting. Semi-structured interviews were carried out and analysed using Grounded Theory.

Result: A core category and five subcategories were set up to describe the patients’ experiences and development during the forest-based rehabilitation. As patients mostly reported that they strove to achieve peace of mind during the forest visits, *Striving for serenity* was chosen to be the core category. At first the patients were *frustrated* when left alone with their own thoughts in an unfamiliar forest environment. They gradually became familiar with the forest environments and also found their *favourite places* where they experienced *peace of mind*. They were then able to rest and begin *reflective thinking* about their life situation, which led to *ambitions to change* it. The preferred forest environments were characterised by openness, light and a good view, and were felt to be undemanding, peaceful and stimulating.

Conclusion: Visits to the forest provided favourite places for rest, were experienced as restorative, seemed to improve reflection and may have contributed to starting the coping process for these patients. However, forest visits, as the only treatment option, are not sufficient as rehabilitation from severe and long-term ED. We suggest that forest visits should be integrated with cognitive behavioural therapy to further improve the recovery and enhance coping in daily life for these patients.

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1. Introduction

People with exhaustion disorder (ED) suffer from the effects of a long-term exposure to mental stress. This exposure can lead to imbalances in both hormonal and neural regulatory systems (McEwen, 1998, 2004) and be a contributing factor in several diseases. Chronic mental stress can be manifested in physiological, emotional, behavioural and cognitive changes. These changes can be perceived as mental and physical tiredness, worries, anxiety,

disturbed sleep, emotional irritability and difficulties with memory and concentration (McEwen, 2004; Ekstedt et al., 2009; Glise et al., 2009). Individuals with ED often experience difficulty sleeping while they are in great need of rest and recuperation (Glise et al., 2009). Consequently, it is easy for them to end up caught in a vicious circle where they are worn out, both physically and mentally, but do not have the means to achieve proper sleep and recovery.

People with high levels of mental stress avoid places that present them with external demands (e.g. social interaction) (Grahm and Stigsdotter, 2010). They have difficulties in responding to the demands that these environments place on them and therefore prefer environments offering peace and quiet. Nature provides a place in which to rest the body and mind (Ulrich, 1983; Hartig et al., 2003;

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Morita et al., 2007; Berman et al., 2008). There is evidence that green environments are important for humans in need of recuperation (Ottosson and Grahn, 2005; Morita et al., 2007; Velarde et al., 2007; Korpela et al., 2010; Hartig et al., 2011), and there are theories that describe how nature influences body and mind in a favourable way (Appleton, 1975; Ulrich, 1983; Wilson, 1984; Kaplan and Kaplan, 1989; Kaplan, 1995).

The Attention Restoration Theory (ART), developed by Kaplan and Kaplan (1989), discusses the importance of spontaneous attention for restoration as provided in nature. Factors that make an environment restorative are *fascination* (the perceptions of nature: the view, the sounds, the smells), *being away* (free from mental activity that requires directed attention), *extent* (when the environment forms “a new world”) and *compatibility* (coherence between one’s desires and purposes for action) (Kaplan, 1995, 2001). Ulrich developed The Affective Aesthetic Theory (AAT), also known as the Stress Reduction Theory, which emphasizes stress reduction through a person’s interaction with nature, which is a process characterised by affects and emotions elicited by nature and leading to positive physiological effects (Ulrich, 1983). These theories have been confirmed in many studies investigating relationships between natural environments and human health (Annerstedt, 2011).

Previous studies have shown that short-term exposure by single forest visits improves psychological and physiological health measures (e.g. Shin et al., 2013; Sonntag-Öström et al., 2014) in accordance with the theories of nature’s positive effects. However, long-term exposure through repeated visits to forests has been less well studied. Since persons with ED often experience great difficulties in achieving recovery, and the process of regaining health takes a long time, it is of considerable importance to study the possible facilitating effects of forest visits over time and also the impact of local conditions and contexts.

Resting is important, but people with ED also need to achieve better coping strategies to change their stress behaviour and to be able to return to work. A meta-analysis concerning the effects of occupational stress management intervention programmes showed that cognitive behavioural rehabilitation (CBR) programmes are the most efficient treatments when guiding people in coping with stress (Richardson and Rothstein, 2008). Nature promotes reflection (Kaplan and Kaplan, 1989; Hertzog et al., 1997), and reflection is probably beneficial for people with ED in coping with their problems. Interviews carried out by Nordh et al. (2009) showed improvements in mental and physical well-being for people on long-term sick-leave due to mental disorders and exhaustion after a 10-week intervention programme with meaningful activities in the forest. However, the participants were significantly worried about the future as the rehabilitation came to its conclusion. The quantitative results from the study by Nordh et al. (2009) showed improvements in symptoms of illness and general functioning, but at the same time a decline in quality of life due to worries about returning to an uncertain life situation.

Patients with ED are often trapped experiencing negative thoughts and feelings (Iacovides et al., 2003; Lazarus, 2006). Earlier research by Korpela (2003) and Hammitt (2000) showed that solitude in natural places can regulate negative mood. However, those studies refer to healthy individuals with negative thoughts and not to mentally exhausted individuals. The question is whether or not these results are applicable for people suffering from ED. In a previous pilot study (Sonntag-Öström et al., 2011) and in a randomised controlled trial (Sonntag-Öström et al., 2015), we found that a three-month rehabilitation where patients with ED spent time in solitude in a forest setting improved their mood. This could indicate that reflection of their current situation would give rise to more positive thinking.

There are indications that cognitive behavioural therapy, especially in combination with vocational rehabilitation, improves health and return to work in persons with burnout or ED (Korczak et al., 2012; SOU, 2011). We also know from some recently published studies that multimodal nature-based rehabilitation in a garden setting may promote return to work and reduce healthcare consumption (Pálsdóttir et al., 2014; Währborg et al., 2014). However, we still do not know how forest visits influence the mind and the coping resources over a long-term perspective. The objectives of this qualitative evaluation were to achieve an understanding of 1/whether the forest environments are perceived as restorative for mind and reflection by the participants, 2/whether they appear as suitable for rehabilitation of ED, and 3/what type of forest and which qualities of forests that were experienced most beneficial.

2. Method

2.1. Forest-based rehabilitation

The forest-based rehabilitation, which was a part of the ForRest project, consisted of a three-month rehabilitation period with repeated forest visits performed with the objective of providing the participants rest and solitude in forest settings. The forest-based rehabilitation consisted in total of 22 visits to the forest for each patient, and was performed twice a week. The spring period started in the middle of March and lasted until the middle of June, and the autumn season started in the beginning of September and lasted until the beginning of December.

The ForRest project (Forest for Rest) was a randomised controlled trial, based on the hypothesis that the boreal forest itself has a restorative effect on patients with ED. All the participants in the ForRest project were on a waiting list for a nine-month cognitively oriented behavioural rehabilitation, which started after the initial three-month forest-based rehabilitation. The ForRest project was carried out in Northern Sweden (65°00' N, 19°20' E) from March 2007 to December 2010 during spring and autumn periods. For more detailed information about the forest-based rehabilitation and the ForRest project, see Sonntag-Öström et al. (2015).

2.2. Forest settings

Eight forest settings were offered to the patients:

The forest by a lake – an open forest dominated by *Pinus sylvestris* (L.) close to a lakeside with a view over a lake with a broken shoreline, small forested headlands and no settlements in the neighbourhood.

The rock outcrop – an area with bare bedrock and scattered small *P. sylvestris* (L.) trees with a view over a mire.

The pine forest – an open even-aged 65-year-old *P. sylvestris* (L.) forest.

The mixed forest – an uneven-aged, multi-layered forest with dense patches of forest mixed with open areas.

The spruce forest – an old, closed, even-aged *Picea abies* [(L.) H. Karst.] forest.

The forest with a small creek – a narrow creek running through a mixed semi-old forest.

Two open mires – one on the way to the old spruce forest and the other towards the rock outcrop. The mires were dominated by *Sphagnum sp* and *Carex sp* with scattered islands with tiny *P. sylvestris* (L.) and *Calluna vulgaris* [(L.) Hull].

All forest settings are described in detail in Sonntag-Öström et al. (2015).

2.3. Patients

The participants of this qualitative evaluation ($n = 19$) were a sub-sample of patients who completed the three-month forest-based rehabilitation in the ForRest project, during the period of September 2008 to December 2010. Sixteen women (29–60 years old, mean age 49) and three men (34–58 years old, mean age 44) participated. The participation was voluntary, and all but one agreed to be interviewed. Most of the patients were on long-term sick leave because of severe ED since more than one year. The project was approved by the Ethics Committee of Umeå University, Sweden (Dnr 07-016M) (Sonntag-Öström et al., 2015).

2.4. Study design

To explore and analyse the patients' experiences of forest-based rehabilitation, a qualitative method was chosen which allows new perspectives to be captured. With the existing theoretical models concerning nature's restorative capacity, we wanted to investigate if and how these theoretical models could be applied also to patients suffering from severe exhaustion, and at the same time be able to identify other possible important aspects of forest-based rehabilitation over time. The research strategy thus followed Grounded Theory, a methodology developed by Glaser and Strauss (1967). Grounded Theory is preferred when the aim is to generate a general explanation of a process or action (Creswell, 2007). It is considered as especially useful when illustrating a process over a longer period, as well as studying complex factors that influence health and illness (Strauss and Corbin, 1998). The Grounded Theory design also allows an emergent design which means that new questions can be generated during the ongoing data collection, analysis and theory development.

2.5. Data collection and analysis

A semi-structured interview guide was used with open-ended questions. The themes in the interview guide covered experiences such as thoughts and feelings of (a) the time spent in solitude in the forest settings as well as with other participants, (b) earlier experiences in natural settings, (c) transportation and the staff, (d) everyday life during the rehabilitation period and (e) the future. Three researchers who were not engaged in the actual forest-based rehabilitation (AD, YL and TS), carried out the interviews independently following the same interview guide. These researchers received training in interview technique from an experienced researcher in rehabilitation medicine, and were instructed not to interfere in the interviews but to allow the respondents to direct the interview as far as possible. All interviews were conducted either at the Stress Clinic, University Hospital of Umeå or at the University of Agricultural Sciences in Umeå. Nine interviews were carried out after the spring and ten after the autumn rehabilitation period. All interviews were carried out close to the end of the rehabilitation period. The interviews lasted for 10–70 min. Each patient was interviewed once by one interviewer. All interviews were audio-recorded and thereafter transcribed verbatim and coded line by line. The OpenCode 3.6 free software (<http://www.phmed.umu.se/enheter/epidemiologi/forskning/open-code/>) assisted in the coding process of the transcripts. To increase the credibility of the study, we used a triangulation technique (Lincoln and Guba, 1985). A group of five researchers from three different disciplines (forestry, physiotherapy and psychology) analysed the interviews in order to obtain a broader picture of the material. The interviews were listened to and the transcripts were read through several times in order to interpret the data in a reliable manner. Notes were written recording separate reflections and interesting passages in the interviews for later use. A constant comparison of data,

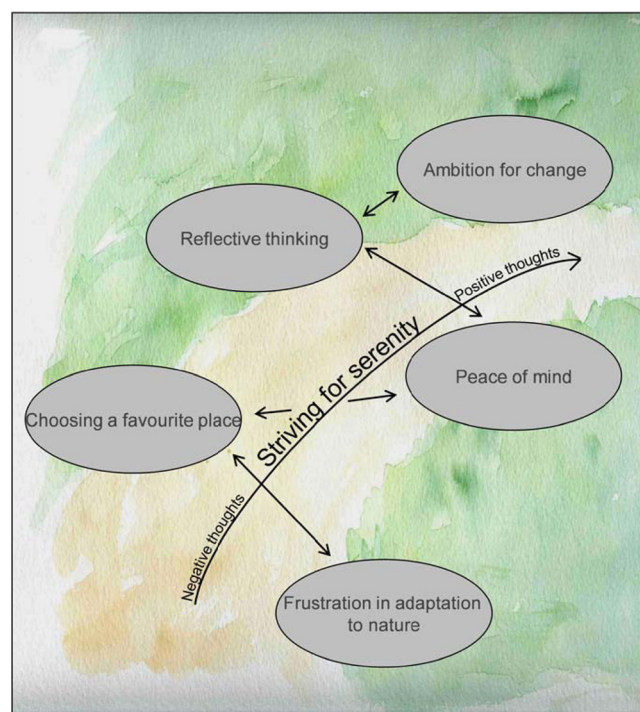


Fig. 1. The patients' mental processes throughout the rehabilitation period.

codes and categories was carried out throughout the whole coding process, meaning that the researchers continuously discussed the emerging themes. The inconsistencies in data synthesis were discussed until they were agreed on.

The analysis started with open coding, that is, assigning new descriptions to phrases and words in the transcripts (Glaser and Strauss, 1967). This was carried out independently by each analyst. Codes with similar elements were grouped into categories. The findings were then discussed by the analysts, with a constant comparison of codes and categories. Subsequently, more abstract categories were constructed. These categories were compared and related to each other using axial coding. The core category, one with a central role that connected to all other categories, was thereafter identified. After analysing these interviews, no new information was found, and we considered theoretical saturation to have been reached.

3. Results

3.1. Striving for serenity – the core category

Patients mostly wanted peace of mind and to feel they were recuperating during their visits to the forest; therefore *Striving for serenity* was chosen to be the core category. Using forest visits as a tool for rehabilitation can be represented as a path that the patients follow when striving for serenity (Fig. 1). The patients were *frustrated* when they were left alone with their own thoughts in an unfamiliar, albeit chosen, forest environment. Gradually, they became more and more familiar with the forest visits and they found their *favourite places* where they could eventually find *peace of mind*. When the patients were able to rest and attain peace of mind, *reflective thinking* about their life situation also started which led to *ambitions to change it* (Table 1).

At the beginning of the rehabilitation period, the two hours of solitude were often experienced as being confusing and increased the mental strain of many of the patients. After having visited the

Table 1
Description of categories, relating to experiences of forest visits, retrieved from interviews according to Grounded Theory.

Categories	Description
<i>Core category</i> Striving for serenity	<ul style="list-style-type: none"> • The rehabilitation can be described by the patients' transformation on the forest path to serenity (Fig. 1). They started with <i>frustration</i> at being left alone with their own thoughts in an unfamiliar environment, gradually finding their <i>favourite place</i> where they could find <i>peace of mind</i>. When the patients found peace of mind and could rest in the forest, they were also able to <i>reflect</i> on their feelings and life which led to <i>ambitions to change</i> their life situation.
<i>Category</i> Frustration in adaptation to nature	<ul style="list-style-type: none"> • The category is dominated by the patients' experience of insecurity in the forest. At the start of the intervention, two hours of solitude doing nothing was experienced as confusing, stressful and worrisome. • Other feelings of distress and anxiety were experienced due to their own reactions to being alone and to social pressure from the rest of the group. The forest itself was seen as an insecure place by some. • Physical obstacles such as (1) fear of "dangerous" animals, (2) becoming lost in the forest, (3) becoming cold and wet on days with bad weather or (4) difficulties moving through deep snow were reported.
Choosing a favourite place	<ul style="list-style-type: none"> • The choice of a favourite place was influenced by (1) a patient's current mood, (2) the patients' own wishes for optimal reflection or peace of mind, (3) earlier experiences of nature or (4) the need for privacy when alone. • The favourite forest settings were characterised by (1) light, (2) openness and (3) a view. • The most appreciated settings were (1) the forest by the lake, (2) the open pine forest and (3) the rock outcrop with scattered small trees. These forest settings were seen as (1) undemanding, (2) peaceful and (3) stimulating for the senses. If a darker setting i.e. a spruce forest, was chosen, it was its snug and secure character that was attractive.
Peace of mind	<ul style="list-style-type: none"> • The category is characterised by the patients' (1) mental presence, (2) physical relaxation and (3) feeling of well-being, during their stay in a chosen forest setting. • The patients experienced the sights and sounds of nature which contributed to their peace of mind.
Reflective thinking	<ul style="list-style-type: none"> • The mood of the patients improved as the rehabilitation progressed and they started to look forward to the forest visits when they could be alone. • Being alone during the forest visits provided (1) easier access to positive feelings, (2) a sense of ease, (3) rest, (4) self-confidence and (5) self-esteem. Their more positive attitude induced reflective thinking about their life situation.
Ambition for change	<ul style="list-style-type: none"> • As their positive and reflective thinking improved, a desire for change emerged among the patients. They started to have the capacity to take the initiative and looked forward to participating in cognitive therapy and learning more about coping. • There was also a fear of failing and then reverting to previous behaviour.

forest a couple of times, they began to benefit from being in the natural surroundings.

One patient said¹ "The time passed by very slowly at the beginning of the rehabilitation period. It was almost stressful because of the long time . . . but then at the end of the rehabilitation period, it was just sort of nice, it didn't trouble me at all. Instead, it was like when you had found your favourite place to sit and you settled down and then . . . you could just relax and be yourself until you heard the bell ring, and then the two hours passed by very quickly" (Woman, interview 6). Consequently, the time spent in solitude became the most pleasant part of the forest visits. It was considered as a privilege and a scarce commodity. It gave the patients a chance to attain peace of mind and/or an opportunity to reflect. As suggested in the quote above, all the patients' states of mind were fragile. Negative thoughts were more prevalent at the beginning of the rehabilitation period and sometimes they continued to the end of that period. However, positive feelings generally became more pronounced as the forest rehabilitation progressed.

Lighting the fire by the shelter was often seen as the starting point for relaxation. Watching, listening and sensing the smell and warmth of the fire was mentioned as being pleasant. It obviously greatly stimulated the senses and could be focused on, especially if a person was not feeling sociable. ". . . looking at the fire and so . . . the fire is like the water, it is soothing and it is almost like . . . it is lovely and . . . the warmth and all such things. So it is . . . I think it was great" (Man, interview 7).

3.2. Frustration in adaptation to nature

At the beginning, the patients felt insecure in the forest. Two hours of solitude doing nothing was, at that point, experienced

¹ In the following, quotations from the patients illustrate their feelings and experiences.

as confusing, stressful and bothersome, both emotionally and physically. Emotional experiences of distress and anxiety were experienced either due to their own reactions whilst being alone or due to social pressure from the rest of the group when they gathered before and after the forest visits. The forest itself was also seen as an insecure place by some. There was a fear of "dangerous" animals or becoming lost in the forest. Sometimes, nature itself was seen as being "fierce" on the days with bad weather when patients were cold and wet or had difficulties moving through the deep snow.

The two hours of solitude were initially experienced as worrying, but became a refuge as the rehabilitation progressed. Since the patients were not allowed to engage in mental activities such as reading a book, etc., the time spent being forced to do nothing could be experienced as stressful and associated with thoughts of what other things they could have accomplished during those two hours. Simultaneously, the patients realised the need for peace of mind, which they otherwise did not allow themselves or found difficult to achieve. Some patients felt insecure in a forest environment and some were afraid of their own reactions to solitude. Those patients chose an environment close to the gathering-point at the shelter where one of the leaders was always present.

Feeling safe and secure and maintaining body temperature were requirements for feeling relaxed and achieving peace of mind. The feeling of safety had several dimensions: it represented a need for physical (animals, becoming lost in nature) and emotional (distress, anxiety) safety in the forest. Safety was also an aspect when seeking shelter under a spruce tree on rainy days or wanting time on one's own without any social pressures. The social nature of the gatherings and the journeys could be perceived as social pressure by some patients and cause discomfort and insecurity. The feeling of physical and emotional insecurity usually disappeared after a couple of visits to the forest. Daily routines during the visits also made them easier.

Maintaining body temperature was sometimes difficult during the winter when the temperature was below freezing point. The

patients had a hard time moving around because of the deep snow while they were forced to be physically active because of the cold weather. These situations were experienced as frustrating and did not contribute to mental restoration. “No, sometimes, especially in the beginning . . . I mean I was mostly angry with the snow, you stomp through the snow and get it up to your knees and . . . and then you just couldn’t move anywhere” (Woman, interview 10).

3.3. Choosing a favourite place

The patients had one or two favourite places that met their requirements. The choice of a favourite place could be influenced by (1) a patient’s current mood, (2) the patients’ own requirements for optimal reflection or peace of mind, (3) earlier experiences of nature or (4) the need for privacy whilst alone. The most appreciated settings were the forest by the lake, the open pine forest and the rock outcrop with scattered small trees, all characterised by light, openness and a good view. These forest settings were felt to be undemanding, peaceful and stimulated the senses. Sometimes, when a snug and secure environment was desired, the darker spruce forest was chosen.

Some of the patients intuitively chose their favourite place the first time they entered the forest, while others chose a different forest environment each visit, before choosing a favourite place for most of the remaining visits. Some patients alternated between two or three favourite places for different purposes: “There is not much happening at the rock outcrop so I could . . . I shouldn’t say that I rested there because I reflected more there . . . by the lakeside it was peaceful, there you became . . . calm” (Woman, interview 12).

The patients recognised several attractive natural characteristics that contributed to their choice of favourite places. The most appreciated environments were those with plenty of light, openness and a view. A safe place hidden from sight was also important to the choice of a favourite place: “It is bright, it is open, it is . . . but at the same time it gave me cover so I could hide myself a little but still have a view” (Woman, interview 1). Darker environments, such as the spruce forest and forest with a small creek, were appreciated because of a sense of being close to nature: “I was looking for . . . shade, and secrecy. I felt quite safe there in the spruce forest . . . I suppose that was why I was attracted by it. I preferred finding a tall spruce tree and crouching under it and . . .” (Male, interview 3). A positive forest setting was also felt to be undemanding and peaceful but, at the same time, one that was stimulating. Earlier positive experiences of nature during childhood or adolescence contributed to a positive experience of the forest in general: “You see, my mother and father were often with us outside in nature. We were out on picnics and during the winter we went skiing and . . . during the autumn we picked berries. So we were often out in the forest” (Woman, interview 12). Some patients were also satisfied with their second choice of forest setting if they were guaranteed to be there on their own. The chance to spend time in solitude in a preferred, and therefore chosen, forest setting was highly appreciated. It was important to be able to spend time by oneself and take refuge from social pressures.

3.4. Peace of mind

The patients felt mental presence, physical relaxation and a feeling of well-being during the stay in a chosen forest setting. The patients experienced the sights and sounds of nature which they found contributed to their peace of mind.

The everyday routine during the forest visits gave a feeling of comfort. The two hours spent in the forest provided the patients with a chance to achieve a peaceful state of mind. This peace of mind was demonstrated by a mental presence and physical relaxation which gave the patients a feeling of general well-being. Some of

the patients reported they had fallen asleep during their time alone. This was perceived as the ultimate measure of relaxation and rest. Some patients also reported better sleep during the rehabilitation period. “. . . and I can tell you that I have slept better after those days I have been out in the forest . . . and even my husband has noticed that” (Woman, interview 1).

The patients enjoyed themselves experiencing the sights and sounds of nature, were pleased “listening” to the silence and fascinated by the nuances in colours and forms of the vegetation and natural formations: “. . . I just felt it was nice and beautiful with the stones and . . . and to be able to recognise patterns and feel . . . even if stones are hard, you can still experience the softness in them . . .” (Woman, interview 9). Watching and especially listening to the many facets of the water seemed to give a feeling of ease: “. . . as long as there was no ice on the lake you could hear the sound of . . . well the voice of gurgling and rippling water . . .” (Woman, interview 19), as did the murmuring sound in the tree-tops and the birdsong. Openness and light contributed to peace of mind: “It was bright and . . . you had a view . . . and it was a friendly forest” (Woman, interview 19); some felt as though they were a part of nature: “. . . you feel more like . . . like being part of nature” (Male, interview 3).

3.5. Reflective thinking

The mood of the patients improved and, as the rehabilitation progressed, they started to look forward to the forest visits. Being alone in the forest made it easier to have positive feelings, a sense of ease, rest, self-confidence and self-esteem. The change towards a more positive attitude induced the patients to start to reflect about their own life.

The time spent in solitude improved the patients’ mood and resulted in more positive thinking. It gave the patients a chance to reflect on, and cope with, their life situation. These thoughts resulted, for some, in hands-on changes in behaviour and attitudes both towards themselves and other people: “. . . I have tried to allow myself things that I never have done before . . . both by having time for myself, getting out to spend time with friends, and even buying things for myself that I never did before” (Male, interview 7). There were also expressions of increased happiness due to the rehabilitation: “. . . I am . . . I have more patience with the kids and . . . I am a little happier, take more initiatives and . . . feel like life is more enjoyable again” (Male, interview 3). The patients also reported improvements in self-confidence and self-esteem. However, one person felt more exhausted at the end of the rehabilitation period due to the social interactions in conjunction with the forest visits: “Well, when I understood how tiresome the trips back and forth to forest were, and the long, long time spent by the fireside . . . I was not at all so relaxed . . . at the end of the rehabilitation period” (Woman, interview 12). Most of the patients reported a desire to return to the forest because there it was easier to have positive feelings, a sense of ease and rest. These feelings were more pronounced the further the rehabilitation progressed. The desire to return was primarily associated with the time spent alone in the forest. However, some patients preferred the social gatherings because of the feeling of social support and endorsement. None of the patients disliked the time they spent alone.

3.6. Ambition for change

At the end of the intervention, a desire for change emerged among the patients. They started to have the capacity to take the initiative and looked forward to participating in the CBR and receiving tools for new coping strategies. However, along with initiatives for change there was also a fear of failure and a reversion to previous behaviour.

Many of the patients were able to experience a sense of freedom and make initial plans for the future during their time in solitude in the forest: "... so when you look at the other side of the lake, you can get the feeling that there is (emphasises) a future for me, this is not the end" (Woman, interview 4). As the patients became more reflective and positive during the rehabilitation period, they also expressed a desire for change or improvement of their self-confidence and behaviour towards health. The patients described being happier at home, being kinder to themselves, having the strength to express themselves and feelings, and having a capacity to take the initiative. These feelings were desirable and welcomed but also transient, as many of them slowly started to fade away after the conclusion of the rehabilitation period. Many patients (mostly women) were cautious of changes in behaviour. They reported previous unsuccessful efforts in changing behaviour to ease the stress: "... it has almost become a compulsive behaviour... one gets a feeling; now I am back to my old behaviour, how could it get to be like this... I am hopeless; I will never be able to change my behaviour" (Woman, interview 19). The willingness to change behaviour was affected by fear of failure. Many patients looked forward to participating in the promised cognitive behavioural rehabilitation in order to learn more about coping with their stress behaviour.

4. Discussion

The progressive stages of restoration, as shown in Fig. 1, are in line with earlier research presented by Kaplan and Kaplan (1989). However, the exhausted patients in our study experienced from the beginning many difficulties in adjusting to nature and also in managing being in solitude. When adjustment was obtained the patients highly appreciated solitude in the forest environments, and also achieved a sense of calm and peace of mind when being there. They then started to reflect more on their life situation and some of them also took initiatives for a change and tested new behaviours. At the end of the forest rehabilitation period many patients however perceived that the feelings of well-being started to fade away, and they got an increasing creeping feeling of anxiety.

There is obviously no simple and quick method of recovering from exhaustion disorder. The positive effects of forest visits seemed rather transient, and in order to be maintained, regular visits probably need to be continued. These exhausted patients were fragile and obviously also in need of other rehabilitative measures in order to restore health and regain working ability. Multimodal rehabilitation programmes with cognitive behavioural therapy and vocational support is recommended for patients with severe exhaustion disorders (SOU, 2011). However, for many patients it takes significant time to restore health (e.g. Stenlund et al., 2012). Nature-assisted therapy that provides cognitive therapy in a garden together with voluntary garden practice has produced some good results (e.g. Adevi and Mårtensson, 2013). The integration of forest-based rehabilitation with multimodal rehabilitation programmes for exhaustion disorder patients may be advantageous, but need to be further evaluated.

In this study, forest visits were experienced as soothing for the mind and relaxing for the body. Bodily warmth and a feeling of safety were important basic conditions required for attaining these positive experiences, which agrees with Maslow's (1943) theory of human needs. *Striving for serenity* was the main focus for the patients' engagement and mediated their wishes to accomplish serenity and peace of mind in the forest over the whole rehabilitation period. Most patients were often able to achieve a feeling of "being away" as they cleared their minds of everyday worries during their time alone. This feeling resulted in both mental and physical relaxation and could even lead to falling asleep. This winding-down and relaxation can potentially have been induced

by activation of the parasympathetic nervous system through the soothing elements of nature (Ulrich, 1983; Kaplan and Kaplan, 1989; Kaplan, 1995).

There were lots of testimonies as to nature's aesthetics and rich stimulation of the senses. In particular, water by the lakeside or by the small creek was greatly appreciated, not only because of the soothing sounds but also for the rich stimulation of other senses. This agrees with the theories and research of environmental psychology (Ulrich, 1983; Kaplan and Kaplan, 1989; White et al., 2010). Although the open fire may not be the most natural of elements in this context, it also stimulated the senses. Open and bright environments were the most popular places when alone. Appleton (1975) described in his theory how we are tuned to choose places that both offer a view and a place to hide, which seemed to be the case for most of the patients. The open areas enhanced a feeling of freedom and progress. Nevertheless, darker environments were also positively experienced by some as snug, mysterious and protective.

The time spent in solitude seemed to be precious. The fact that the patients were not allowed to be active was maybe frightening at the beginning of the rehabilitation period, but nevertheless more appreciated towards the end of the rehabilitation. In everyday life, many patients seemed to keep themselves busy with small everyday chores to mask worries or anxiety. The forced inactivity in a natural setting became a tool for confronting everyday realities. Some patients pointed out that individual solitude was more crucial than the choice of environment during the two hour time alone. There is evidence that a social life is beneficial to our well-being (House et al., 1988). However, when needing rest and recuperation, solitude may provide an escape from social roles and demands, and help the person explore their personal feelings. Earlier research also shows that mood and the need for attentional restoration influences the wish for solitude and the choice of preferred environment (Stigsdotter and Grahn, 2002; Korpela, 2003; Staats and Hartig, 2004). Nature has been found to enhance reflection (Hertzog et al., 1997). The patients in this study reported such benefits from their time alone. An increased reflective capability can be beneficial for patients with exhaustion disorder to enhance their coping abilities to reduce stress behaviour. A reported feeling of peace of mind was mostly limited to the time spent alone while a feeling of ease stayed with the patients as they returned home.

There were also long-term effects with more positive feelings and thoughts. These positive changes could lead to improved problem-solving, insights, better self-esteem and enhanced attitudes towards themselves and their loved ones. Positive effects on patients' self-reported moods in both the short and long term were also reported in a pilot study (Sonntag-Öström et al., 2011) as well as in the randomised controlled trial ForRest (Sonntag-Öström et al., 2015). Such positive emotions with upward spirals can be a good starting point for adequately coping with everyday lives and stress according to the cognitive model of coping (Folkman and Moskowitz, 2004). It seems that the positive effects gained from forest visits need to be maintained in the same way as we need to keep on exercising to sustain the benefits of physical activity. Many patients expressed a need and a wish to continue forest visits by themselves, but realised the difficulties of managing this by themselves. Korpela et al. (2010) found that lack of energy seems to result in fewer visits to favourite places and a feeling of being less healthy. Many activities that require taking the initiative can be hard to maintain, especially if you are tired and wearied, but carrying them out as a group activity can help with motivation. Therefore, arranging forest visits for rest and recuperation as a group activity could be an efficient way of achieving such therapy. However, especially exhausted people should be provided opportunities for time spent in solitude. In some Nordic countries, medical doctors can prescribe physical activity for the prevention and treatment of several diseases. Korpela et al. (2008) and Korpela and Ylén (2009) introduced

“favourite place prescriptions” which might also be a way of motivating visits to natural habitats as both prevention of disorders and for treatment.

Being unable to cope with stress is a major problem for patients with exhaustion disorder. The cognitive-behavioural approaches have, so far, been found to be the most effective ways in guiding exhausted patients to cope with stress (SOU, 2011). Patients in our study were able to start the process of coping with their stress before entering the cognitive behavioural rehabilitation, but at the same time they lacked guidance and tools for developing efficient coping strategies. As visits to forest environments seem to enhance positive thinking, reflection and the process of coping, it would probably be beneficial to combine forest-based rehabilitation with cognitive behavioural rehabilitation. This is also in line with results in a previous interview study on the same target group of patients, who during the cognitive behavioural rehabilitation started to reflect and make up new plans for the future (Fjellman-Wiklund et al., 2010). As shown in their study, the tools and guidance of therapists for new coping strategies are very important for recovery. This is also strengthened by results from nature-assisted therapy where the garden environments “prepare, receive and open up the participants before and after therapeutic elements” (Adevi and Lieberg, 2012).

The experiences and reports from patients in our study give some support to the view that the forest by itself is restorative and might have rehabilitative potentials. However, the main positive effects reported from the forest visits were the establishment of mental peace and good basic conditions for starting the recovery process. The effects seemed to be quite temporary and short-lasting, which argues for a continued close integration of forest visits with cognitive behavioural rehabilitation.

4.1. Methodological considerations

The patients had the opportunity to agree to an interview at the end of each rehabilitation period. The interviews were conducted during a two-week period after each forest rehabilitation period. Therefore, there was no time for analysing an interview before carrying out the next one. Therefore, the interviews were analysed after each period of interviewing. Nearly equal numbers of interviews were carried out during the spring (nine) and autumn (ten) seasons, thus enabling us to collect experiences specific to seasons. The three first interviews were short due to a lack of interviewer experience. However, these three interviews included a good deal of information and were therefore included in the study.

The leaders during forest visits consisted in total of four women and one man. There were four different female leaders for the four consecutive rehabilitation periods due to the part-time nature of their employment. A social and/or therapeutic effect caused by a leader is inevitable and might have added either a positive or negative impact on the total experience of the forest rehabilitation for the participants. We consider this effect to be minor but equal across all the four rehabilitation periods due to the role of the leaders. The leaders neither participated with the interviewing nor the analysis of the interviews. The reliability of our findings is confirmed as the source population interviewed represents all the invited patients but one.

A limitation to this study could be the possible differences in group cohesiveness between the four different groups. The support and affirmation given by patients to each other may have influenced the participants unequally. This is a possible effect that we could not control for.

The aim of this qualitative study was not to produce data with high degree of generalizability to large populations, but rather to gain knowledge about the process and the experiences of forest-based rehabilitation in patients with severe stress-related

exhaustion. The majority of the participants were women and a few were men, which reflects the distribution of patients with ED in a Swedish context. Therefore, our results cannot be considered generalisable to neither women nor men in any other context, but parts of the results might be applicable to other rehabilitation contexts.

5. Conclusions

For patients with exhaustion disorder, the visits to the forest provided favourite places for rest. However, the patients experienced initial difficulties with increased anxiety when staying in solitude in idleness. They also reported lack of restorative experience if not feeling safe or being able to stay warm. The visits allowed reflection and may have contributed to the start of the process of coping. The most preferred forest environments; the forest by the lake, the open pine forest and the rock outcrop with scattered small trees, were all characterised by openness, light and a good view. These settings were felt to be undemanding, peaceful and stimulated the senses. However, forest visits as the only rehabilitative measure do not seem to be sufficient for patients with severe exhaustion disorder. As with other nature-assisted therapies, a combination of forest visits together with multimodal and/or cognitive behavioural rehabilitation programmes might improve coping with stress and speed up the recovery process. Future research in this area should focus on how to best integrate forest-based rehabilitation with multimodal rehabilitation programmes for patients with exhaustion disorder. Forest environments should be easily accessed, safe and convenient, and also offer possibilities for time spent in solitude.

Sweden – along with many countries in the Nordic hemisphere – is covered by large areas of boreal forests, making forests a viable resource to provide opportunities for forest-based rehabilitation.

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