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"Nature's effect on my mind" – Patients' qualitative experiences of a forest-based rehabilitation programme

Elisabet Sonntag-Öström[a], Therese Stenlund[b], Maria Nordin[d], Ylva Lundell[c,*], Christina Ahlgren[b], Anncristine Fjellman-Wiklund[b], Lisbeth Slunga Järvholm[a], Ann Dolling[c]

[a] Department of Public Health and Clinical Medicine, Occupational and Environmental Medicine, Umeå University, S-901 87 Umeå, Sweden
[b] Department of Community Medicine and Rehabilitation, Physiotherapy, Umeå University, S-901 87 Umeå, Sweden
[c] Department of Forest Ecology and Management, Swedish University of Agricultural Sciences, S-901 83 Umeå, Sweden
[d] Department of Psychology, Umeå University, S-901 87 Umeå, Sweden

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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.

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) (Grahn 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;

* Corresponding author. Tel.: +46 907868337.
E-mail address: Ylva.Lundell@slu.se (Y. Lundell).

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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).