

Nature-Based Rehabilitation in Peri-Urban Areas for People with Stress-Related Illnesses – a Controlled Prospective Study

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Abstract

This study was conducted as a controlled prospective study of an eight-week nature-based rehabilitation (NBR) for individuals with stress-related mental illnesses. This was an effort to find new means of rehabilitation for a group of clients proving difficult to rehabilitate with treatment as usual. The study was carried out as a joint effort between primary health care centres in Skåne (Region Skåne), the Social Insurance Agency, the Public Employment Services, the Farmers Union and several agricultural businesses. This work is a new approach to rehabilitation within primary health care in Sweden. Ten agricultural businesses offered the NBR programme, and 50 primary health care centres remitted 150 participants to the study. The primary end point was return to work or studies; other measurements included coping and functioning in everyday life and symptoms of ill health. The intervention study ran from August 2012 to December 2013, and the last one-year follow-up collection of data will be performed in June 2014. The results will be presented in 2015.

INTRODUCTION

Stress-induced illnesses have become a huge global problem. According to the World Health Organization (WHO), mental health disorders and cardiovascular diseases – both of which are clearly affected by stress – are expected to be the two major contributors to illnesses in all parts of the world, with mental health disorders calculated for all age groups and both sexes, by the year 2020 (WHO, 2008). During stress body organs react in many different ways, and if the stress is sustained for an inappropriately long time without the possibility for recovery these reactions become dysfunctional, and may have serious and harmful effects on all vital organs (Aldwin, 2007). The widespread exhaustion and fatigue reactions caused by prolonged stress that we now face in Europe are a serious problem (Salomon et al., 2012; Vos et al., 2010). In Sweden, approximately 40% of newly granted disability pensions are due to psychiatric diseases and fatigue syndromes, and approximately 30% are caused by musculoskeletal disorders (Socialstyrelsen, 2009). Few treatments have had sufficient effect on improved health and/or return to work rate, thus calling for new rehabilitation alternatives (Arends et al., 2012; Swedish Government Official Reports, 2011). Recent research results suggest that people affected by stress-induced illnesses can benefit from rehabilitation in natural environments: harmful stress can be reduced, levels of function can increase (Eriksson, 2012; Gonzales, 2010; Sonntag-Öström et al., 2011) and return to the labour market is facilitated (Pálsdóttir et al., 2013).

In the mid-1980s some interesting research findings were published in the United States. It appeared that gardens, parks and areas of natural greenery had beneficial effects on people's mental health and capacity (Kaplan and Kaplan, 1989; Ulrich, 1984). The researchers called these effects "restorative". These health effects were connected to restoration from either "mental fatigue" (Kaplan, 2001) or acute symptoms of stress (Ulrich, 1999). Many studies indicate that natural environments may have a positive impact on well-being and health (Hartig et al., 2014; Mitchell and Popham, 2008), improve self-

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reported health (Björk et al., 2008) and facilitate stress restoration (Annersted and Währborg, 2011; Ulrich et al., 1991), and in comparison with control groups, the level of consumption of health care was significantly reduced (Währborg et al., 2014).

The Swedish University of Agricultural Sciences (SLU) has built a full-scale R&D rehabilitation garden at its Alnarp campus. Since 2002, the garden has been used for research on rehabilitating individuals with symptoms of stress-related mental illnesses, including exhaustion syndrome (Stigsdotter et al., 2011). The nature-based rehabilitation (NBR) programme runs for twelve weeks, four days a week, three and a half hours each day, and is monitored by a transdisciplinary team from four professions (physiotherapist, psychotherapist, occupational therapist and gardener). A new rehabilitation method has been developed, including many steps in the process of returning to work. Not least, the participants' motivation is central to the change/rehabilitation work: motivation to strengthen one's health that, despite severe disease, can in most individuals be strengthened through the empowerment of encountering animals and being in natural environment (Grahn et al., 2010). NBR also shows that participants feel that physical activities are more meaningful because of the direct feedback they experience that they receive from nature, a garden and/or an animal (Eriksson, 2012; Grahn et al., 2010; Pálsdóttir et al., 2014).

The concept of nature-based rehabilitation is rapidly spreading, and in peri-urban areas of Sweden this new form of ecosystem services is under development, including various types of businesses such as care farms, health gardens and rehabilitation in forests, or so-called multifunctional agriculture (Augustinsson, 2009; Sonntag-Öström et al., 2011). In 2008, a pilot study called "Green Rehabilitation" was carried out in the county of Skåne whereby a new rehabilitation model was tested. The project had the county council (Region Skåne) as principal, and was conducted in cooperation with the Swedish Social Insurance Agency (Försäkringskassan) and the Swedish Public Employment Service (Arbetsförmedlingen). The aim of the project was to bridge the barriers between sick leave and work/study through nature-based rehabilitation offered by different agricultural services in the peri-urban area of Skåne. The participants involved in the project were mainly on sick leave for adjustment disorders and reactions to severe stress (ICD-10 F43 diagnoses), anxiety disorders (F41 diagnoses), depression (F32) and long-lasting, non-malignant pain (M79), largely caused by the load in previous work, psychosocial and/or ergonomic (Augustinsson, 2009). The common practice is that the rehabilitation takes place at health care institutes/centres. In the above-mentioned pilot project, a health care centre remitted clients to two farms offering meaningful nature-based occupations for a period of eight weeks. Six months after the intervention, eight of eleven participants had returned to their earlier work, begun at a new workplace, or started studying or participating in the "Deeper Collaboration" programme, which involved job training and further return to work/study (offered by the Social Insurance Agency and the Public Employment Service). The project was considered to have been very successful (Augustinsson, 2009) and encouraged the members of the county council of Skåne to adjust the model, scale it up and test it on a scale for the whole county of Skåne. The new model, tested in the current study (hereafter called NUR-model), was a collaboration between primary health care centres in Skåne, the Social Insurance Agency, the Public Employment Services, the Farmers Union and several agricultural businesses, and is a new concept in health care services in Sweden entailing an attempt to find new means of rehabilitation for a group of clients proving difficult to rehabilitate with treatment as usual (Åsberg and Nygren, 2012).

The aim of this study was to examine the effect of an eight-week NBR according to the NUR model in regard to return to work, symptom reduction, coping, function and quality of life, and further, to develop a new conceptual rehabilitation model of NBR for implication in the primary health care services in Skåne.

MATERIAL AND METHODS

The new NBR, the NUR model was tested against *treatment as usual*, which included traditional cognitive behavioural therapy, physiotherapy and vocational therapy, all in the national rehabilitation programme. In this study, the patients were referred to as

participants. The inclusion criteria for the study were age 16-67 years, with one of the following International Classification of Diseases, ICD-10, (WHO, 2012) as the primary diagnosis: psychiatric diagnosis of adjustment disorder and reaction to severe stress (ICD-F43), or depression (ICD-F32.0, F32.1). The exclusion criteria were known drug or alcohol problems, and any history of domestic violence.

The study was conducted as a controlled prospective study with an intervention group in NBR ($n=150$) and a matched control group from regional-register data, receiving treatment as usual ($n=450$). All participants received both written and oral information, and provided written consent before entering the study. The primary end point was return to work or studies. To increase validity a mixed-method approach was chosen, including pre-test-post-test design (four measure points) to examine changes over time as regards symptoms of ill health, function and quality of life. The participants completed validated questionnaires before entering the NBR, after the intervention ended, and at two further follow-ups six and twelve months afterward. One year after the intervention ended, return to work rate was assessed.

A semi-structured interview study was performed, including both participants and agricultural business personnel to learn about their experiences in the NUR intervention programme. Some interviews were carried out over the telephone, documented with handwritten notes, while some were held face-to-face, audio-recorded and transcribed verbatim. Participation was confidential, and participants were informed that they could refuse to answer the questions or end the interview at any point without explanation (World Medical Association's Declaration of Helsinki, 2013). Further, the agricultural business personnel kept a reflection diary on their participants' rehabilitation.

In the NUR-model, the health care personnel are responsible for the medical interventions and the agricultural business is responsible for the nature-based occupations, which include activities related to daily work on a farm, in a health garden or in a forest. Ten agricultural businesses and 50 primary health care centres were included in the study. All the agricultural businesses were situated within 20 km of their nearest health care centre, and were distributed around Skåne County. The agricultural businesses were divided into three major categories, depending on their main focus of activities based on their daily work: i) garden and nature-based activities; ii) animal- (sheep, horses, cats, dogs and/or birds) and nature-based activities; and iii) horse farms. Not all agricultural businesses were farms – some were homes with a large garden or had access to a nearby nature area – but all were situated in peri-urban areas of Skåne. None of the companies offered therapy, but rather only meaningful activities grounded in their daily work.

The participants could choose freely amongst the agricultural businesses, depending on their own interest. The intervention time was eight weeks. Each week the participants attended the NBR programme for four hours at a time. All agricultural business followed a given frame for the intervention; i.e., the daily structure was the same for all participants, but the occupations varied depending on the main focus of the company. The schedule for the day was divided into five major parts: Part 1 – a short “get-together” and tea-time to welcome the participants; Part 2 – an introduction to present the activities of the day; Part 3 – a quiet session during which the participants found their own place to sit and relax before participating in the day's activities; Part 4 – performance of the chosen activity/ies; and Part 5 – a “get-together” with a light lunch and a wrap-up of the day. At halftime during the NBR intervention, the medical doctor, the participant and representatives of the Social Insurance Agency and the Public Employment Service had a meeting to determine the participant's next step toward the labour market or return to studies.

The intervention study ran from August 2012 to December 2013, and the last one-year follow-up collection of data will be done in June 2014. The Regional Ethical Review Board in Lund, Sweden, approved the study.

RESULTS

The hypothesis of this study was that nature-based rehabilitation according to the NUR model will provide greater return to work than will treatment as usual, and will also

have positive effects on participants' symptom reduction, improved coping, function and quality of life. The results will be presented in 2015, and will be compared with a matched control group featuring treatment as usual. The intention is to apply the NUR-model to the whole region's primary health care system and establish a permanent cooperation between agricultural businesses and primary health care units. This is a new approach in primary health care in Sweden for the rehabilitation of individuals with stress-related mental illnesses.

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