

## Regional differences in visitors' experiences: the impacts of natural environment to health and wellbeing in national parks

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**Abstract:** There's been a lot of studies concerning the relationship between natural environments and health and wellbeing. Many of them have focused on finding out what benefits can be acquired from nature and some have also made comparisons on different natural and unnatural environments and their effects on health. However, there really hasn't been any large focus on the health benefits of various wilderness areas.

This article is based on a master's thesis. The aim of the thesis was to examine whether there would be any differences in the health and wellbeing benefits visitors experienced in one of four nature reserves (study sites) in Finland. The quantitative data was collected using an Internet survey. Altogether, there were 910 responses that were unevenly distributed across the four nature reserves. The data was analysed with principal component analysis and linear regression analysis.

Results suggest there might be some differences how different wilderness areas affect people's health and wellbeing. However, the study was unable to find any reliable evidence on what variables were the cause of these differences. Nevertheless, there was evident data to support the thesis that contact with nature has positive effects on people's health and wellbeing. More research has to be made in order to be able to understand more about the impact of different environmental characteristics of wilderness areas on health and wellbeing.

*Keywords:* national park, nature reserve, natural environment, benefits, wellbeing, health

### Introduction

Many of the studies concerning the relationship between natural environments and health and wellbeing have focused on finding out what benefits can be acquired from nature (see Keniger *et al.* 2013). Some have also made comparisons on different natural and unnatural environments and their effects on health (e.g. Hartig *et al.* 1991, Tyrväinen *et al.* 2007, Curtin 2009, Tyrväinen *et al.* 2014). However, the effect of various wilderness areas on human health

and wellbeing has received less attention as the larger focus has been on urban areas and green space in neighbourhoods.

Apart from researching the benefits of interacting with nature, there's been constant effort on trying to find out the reasons behind these beneficial encounters. In geography, Wilbert Gesler's (1992, 2003) concepts of therapeutic landscapes and healing places arise from the interest on in what kind of places and spaces therapeutic and healing processes take place. Gesler (2003) defines therapeutic landscape

through a healing place, which sums up physical, psychological, mental, emotional and social aspects of healing. He continues that the experience of a healing place builds up from different natural, built, symbolic and social environments. The healing aspects of a natural environment arise, for example, from a belief in nature as a healer, beauty and general aesthetic pleasure experienced in nature, the remoteness of nature and the immersion in it, as well as from some specific elements of nature such as water, garden or animals.

Humans' relationship with nature has also been used as an explanation for the health and wellbeing benefits of nature. A lot of theories have focused on the evolutionary standpoint, which claims that the human–nature relationship arises from the biological facets of humans (e.g. Wilson 1984, Orians 1986, Appleton 1996). It is thus a biological response. This viewpoint is closely related to the restorative environments (Kaplan & Kaplan 1989) that stress the fact that (natural) environments have to be understandable and readable to be restorative and pleasant and thus to be able to affect people positively.

This study offers insight into how different wilderness areas affect people's health and wellbeing. The aim of the study is to examine whether different wilderness areas affect people's health and wellbeing differently, and if yes, why.

## Data and methods

The data was collected via an Internet survey during the summer of 2013 and the spring and summer of 2015. The survey

was conducted by the Parks & Wildlife Finland (Kaikkonen *et al.* 2014) and was used in this study as such without any alterations to the survey questions. The respondents were contacted on the research areas through a visitor survey. They received an email with a link to the survey after their visit to one of the parks.

Four parks were included in this study. Kevo Strict Nature Reserve lies in the northernmost Finland and has a 63 km long summer hiking route. Most of the visitors arrived from large Finnish cities and hiked in the area for four days. Syöte National Park is situated just below the southern Lapland and is a popular skiing resort. Most visitors arrived to Syöte from a 2-hour driving distance and visited the park for four hours but stayed in the nearby area for five days. Kurjenrahka National Park is a small park in the Southwest Finland and is a popular day trip destination among the locals. On average, visitors came to experience nature with their family and walked a few kilometres during their 4-hour trip. Repovesi National Park is located in the Southwest Finland and is a popular recreational park among the locals. Visitors usually stayed in the park for four hours or spent the weekend in the near-by area.

Altogether, the survey provided 910 responses (290 respondents from Kevo, 399 from Repovesi, 132 from Kurjenrahka and 89 from Syöte). Principal component analysis was used to find out which variables combined best with each other. A cluster analysis was used as a helping tool to figure out how many groups the variables could possibly create. The cluster analysis found 14 clusters that were reduced to 12 in principal component analysis because

of too small group sizes. Then the new variables were run through the Kruskal–Wallis test to test whether there would be any differences in the variable distributions across different research areas. The found differences were then analysed with a linear regression analysis to research the reasons for the areal differences. The independent variables used in the regression analysis were chosen due to the statistically significant correlation between the independent and the dependent variable.

## Results

Principal components analysis resulted in 12 new variables. Those variables as well as some other variables regarding, for example, the amount of exercise the visitor had done during their visit were tested with the Kruskal–Wallis test. The test found regional differences in 14 variables (differences in at least two areal pairs). The results are shown in the Table 1.

Six variables were chosen for further analysis (“Duration of the physical health and wellbeing impacts of nature (HWIN)”, “Duration of the psychological HWIN”, “Value of the HWIN”, “Learning and self-actualisation”, “Exercise-induced wellbeing” and “Being away from everyday life”) as the found differences in these variables were not explicitly connected to the apparent differences the areas have (e.g. distinctions in routes or recreational opportunities). In the “Duration of the physical/psychological HWIN”, visitors were asked to rate how long they estimated the health and wellbeing impacts they experienced during their visit would last

after the visit. Psychological impacts were estimated to last the longest by the visitors of Syöte, and physical impacts by the Kevo visitors. In the “Value of the HWIN”, visitors were asked to evaluate how big the value of the HWIN they experienced during their visit was. Kevo visitors rated the value the highest by far: their average for the value was 882,50 € and medium 500 € as the second comers Syöte visitors rated the value 226 € (AVG) and 150 € (med). By comparison Kurjenrahka visitors rated the HWIN value for only 121 € (AVG) and 50 € (med).

Kevo visitors learned significantly more during their visit when compared to other visitors. They also felt significantly more exercise-induced wellbeing than Repovesi or Kurjenrahka visitors. Syöte visitors felt it significantly more than Kevo visitors. Exercise-induced wellbeing means visitor exercised somewhat differently during their stay in the park than in their everyday life and it increased their physical wellbeing. In Kevo and Syöte visitors felt they were able to be away from their everyday life significantly more than the visitors of Repovesi and Kurjenrahka.

Regression models were created for each of the six variables. Duration of the psychological HWIN was affected most by learning and self-actualisation as well as being away from everyday life, duration of the physical HWIN by exercise-induced wellbeing, and value of the HWIN by if the visitor had hiked during their stay, if they had had medium exercise during the visit and the duration of the psychological HWIN. Learning and self-actualisation was most affected by psychological effects, and exercise-induced wellbeing by psychological

Table 1. Variables that had regional differences in at least two areal (park) pairs according to Kruskal-Wallis test. Numbers represent p-values for the given variables in different areal pairs. Variables chosen for further linear regression analysis are in bold. HWIN = Health and wellbeing impacts of nature.

Variable	Syöte-Kevo	Syöte-Repovesi	Syöte-Kurjenrahka	Kevo-Repovesi	Kevo-Kurjenrahka	Repovesi-Kurjenrahka
Light exercise	0,000	0,004	0,000	0,000	0,001	0,090
Medium exercise	0,000	0,369	0,002	0,000	0,000	0,001
Hard exercise	0,000	0,000	0,000	0,000	0,000	0,204
Travelled distance (km)	0,000	0,003	0,000	0,000	0,000	0,141
<b>Duration of the physical HWIN</b>	0,176	<b>0,000</b>	<b>0,000</b>	<b>0,000</b>	<b>0,000</b>	0,980
<b>Duration of the psychological HWIN</b>	<b>0,008</b>	0,090	0,087	<b>0,00</b>	<b>0,00</b>	0,720
<b>Value of the HWIN (€)</b>	<b>0,000</b>	0,222	<b>0,002</b>	<b>0,000</b>	<b>0,000</b>	<b>0,001</b>
Relationship with the area	0,000	0,001	0,002	0,003	0,064	0,754
Mood in general	0,000	0,000	0,000	0,012	0,017	0,587
<b>Learning and self-actualisation</b>	<b>0,000</b>	0,138	0,749	<b>0,000</b>	<b>0,000</b>	<b>0,028</b>
<b>Exercise-induced wellbeing</b>	<b>0,012</b>	<b>0,000</b>	<b>0,000</b>	<b>0,000</b>	<b>0,000</b>	0,140
<b>Being away from everyday life</b>	0,729	<b>0,001</b>	<b>0,000</b>	<b>0,000</b>	<b>0,000</b>	0,204
Group size	0,190	0,045	0,182	0,000	0,815	0,000
Time spent in the area	0,000	0,006	0,000	0,000	0,000	0,000

effects as well as if the visitor had skied during their stay or if they had had medium exercise. Being away from everyday life was most influenced by psychological effects and if the visitor's mood was good during their stay.

## Discussion

It was found out that there were some regional differences in visitors' experiences concerning the health and wellbeing impacts of nature. However, regression models were not able to model the reasons behind these differences very accurately as all the coefficients of determination for the models were under 0,5 (between 0,231–0,376). More data is needed to assess this issue more thoroughly.

Nonetheless, the results show that there may be some differences between wilderness areas when looking at the impacts of nature on health and wellbeing. Kevo Strict Nature Reserve differed significantly from the other areas in all but two comparison pairs in the six variables examined. Results suggest this might have something to do with the psychological effects the visitors experienced during their stay. It may be that the Kevo area has some characteristics that qualify as therapeutic landscape or restorative environment, but the current data does not offer enough information to assess this issue more deeply. However, the results show that contact with nature effects positively on people's health and wellbeing.

According to Stuart Burch (2013), tourists can experience iconic landscapes and attractions in a highly different way than locals. For locals, a regional scenery is seen

every day and will raise different emotions than for a tourist who sees the landscape for the first time. This study did not take into account the difference between locals versus tourists experiencing the HWIN. Hence this matter might be one of the big underlying subjects explaining the regional differences found in this study. More research is needed to better understand how differences between different regions' HWIN occur.

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