



# The effects of urban inhabitants' nearby outdoor recreation on their well-being and their psychological resilience



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## ARTICLE INFO

### Article history:

Received 9 August 2014  
Received in revised form  
25 June 2015  
Accepted 26 June 2015

### Keywords:

Outdoor recreation  
Well-being  
Psychological resilience  
Effects  
Leisure activities  
Spatial planning

## ABSTRACT

With the shift to a service based society, providing opportunities for outdoor recreation that enables mental and physiological self-regulation has become an increasingly important landscape function. Recent research has provided considerable evidence that visits to near-natural everyday landscapes promote psychological and physical health. However, little is so far known about the effects of people's regular outdoor recreation in their local natural environment on their well-being and, in particular, on their psychological resilience. In our project we address this research gap by investigating nearby outdoor recreation behaviour in three urbanized regions in Switzerland, each of which has a different predominant culture and language (German, French and Italian speaking). A standardized questionnaire was sent to a random sample of residents ( $N=1200$ ) in each region. Stepwise regression supported the hypothesis that regular nearby outdoor recreation has a significant but rather marginal effect on respondents' reported well-being and their psychological resilience, even when systematically controlled. However, similar effect sizes, in particular in terms of psychological resilience, were found with other leisure activities. More generally, we found that well-being and psychological resilience were influenced by different factors, and that increasing psychological resilience mainly required a long duration of recreation or leisure activities.

## MANAGEMENT IMPLICATIONS

This paper provides robust evidence that urban inhabitants' regular outdoor recreation in the nearby natural environment has positive effects on their emotional well-being and their psychological resilience. The findings suggest that the quality of the nearby recreation area is at least as important a condition for these benefits as the easy access to these areas. Inhabitants' satisfaction with the recreation area, their activity level within the recreation areas as well as the time spent in the recreation areas appeared to be more relevant predictors for these benefits than the frequency of visits in these areas. Accordingly, managers should invest as much resources in increasing the quality of the recreation areas as in improving their accessibility.

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## 1. Introduction

Recent literature has emphasized the role of people's regular outdoor recreation in the natural environment near to their place of residence, to not only increase well-being and health, but also to better cope with work strains such as mental fatigue, emotional exhaustion, or stress (Coleman & Isoahola, 1993; Degenhardt & Buchecker, 2012; Degenhardt, Frick, Buchecker, & Gutscher, 2011).

The natural environment around urban settlements is often under high pressure from competing land uses such as housing, transport or commercial recreation; therefore environmental managers need robust research-based evidence that nearby outdoor recreation in natural environments is truly relevant for residents' well-being, which also includes their work performance. Such information is becoming ever more crucial because nearby outdoor recreation so far is not recognized as a land use in its own right, and is therefore typically neglected in the spatial planning processes of smaller cities (Buchecker, Kienast, Degenhardt, Widmer, & Moritzi, 2013). The goal of our study was to provide such evidence based on empirical evidence derived from the relevant

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target group, namely urban residents. In our study, we defined nearby outdoor recreation areas as the natural environment around cities or settlements that residents can easily access during their leisure time, including leisure time on workdays. Nearby outdoor recreation includes all nature-based activities in these areas.

## 2. Outdoor recreation and well-being

Systematic and comprehensive research on the function of outdoor recreation in urban regions for residents' long-standing well-being is so far lacking. However, evidence is now mounting that exposure to nature, and in particular in the form of activities in natural settings, increases urban residents' health and well-being (Korpela, Borodulin, Neuvonen, Paronen, & Tyrvaïnen, 2014). Most of the existing studies, however, refer to short-term effects of visits to green spaces for individuals' physiological, cognitive and emotional recovery and are mainly based on experiments (e.g. Bowler, Buyung-Ali, Knight, & Pullin, 2010; Hartig, Evans, Jamner, Davis, & Garling, 2003; Martens, Gutscher, & Bauer, 2011; van den Berg, Koole, & van der Wulp, 2003; Ulrich et al., 1991). Studies considering the effects of long-term exposure to nature have been mainly conducted in the context of (therapeutic) garden activities (Haluza, Schonbauer, & Cervinka, 2014; Gonzalez, Hartig, Patil, Martinsen, & Kirkevold, 2011; Kim, Lim, Chung, & Woo, 2009) and several longitudinal studies have analysed the role of access to green spaces to reduce epidemics (Mitchell & Popham, 2008; Takano, Nakamura, & Watanabe, 2002; Villeneuve et al., 2012). However, only very little is known about the long-term effects of direct exposure to nature on well-being. Some recent studies have considered the mediating effects between greenness of the local environment and residents' physical and mental health (Sugiyama, Leslie, Giles-Corti, & Owen, 2008; Villeneuve et al., 2012; de Vries, Verheij, Groenewegen, & Spreeuwenberg, 2003) and found clear main effects but no consistent mediating effects of outdoor activities. One study that has tried to measure the effect of residents' regular outdoor recreation on their well-being during a longer period is that of Korpela et al. (2014) who found a moderate but significant association between leisure time spent on nature-based recreation and emotional well-being among the Finnish population.

The findings of the few existing studies on long-term effects of exposure and visits to natural settings are subject to two main limitations: (a) most of these studies did not control for major potentially confounding factors these effects might have, such as the general state of health of respondents (which might influence the time spent in green areas) or their work strains (that might for example limit the energy for participating in outdoor recreation) (Degenhardt et al., 2011); and (b) hardly any of these studies compared the effects of outdoor recreation with effects of other leisure activities, which means that the relative importance of outdoor recreation remains unclear. One of our contributions to this line of research in this paper is to overcome these two limitations by including relevant influencing factors of well-being, and by considering the effects of alternative leisure activities.

Studies on the effects of leisure activities revealed that physical leisure activities have similar (and not necessarily higher) effects on wellbeing compared to social activities (Trainor, Delfabbro, Anderson, & Winefield, 2010). Such studies have increased in recent years (Hung & Lee, 2013), but have not considered outdoor recreation in detail. Doerksen, Elavsky, Rebar, and Conroy (2014) found that weekly (short-term) fluctuations of well-being at a within-person level were mainly influenced by social activities, whereas physical activities only showed effects on well-being at a between-person level. This finding suggests that longer-term

effects of outdoor recreation are more relevant for wellbeing than short-term effects.

Well-being can be conceived as a complex and synergistic phenomenon that is composed of a considerable number of dimensions and components (Russell et al., 2013). Similar to most authors of comparable studies, we focused on subjective, and in particular emotional, well-being because these subjective aspects of well-being enable us to embrace well-being in an integrative way (Nisbet, Zelenski, & Murphy, 2011).

## 3. Psychological resilience as a complementary dimension of well-being

A further contribution of our study entails the measurement of the outcomes of nearby outdoor recreation. Most existing studies focused on the three dimensions of well-being: positive and negative emotions, and life satisfaction (Korpela et al., 2014). Other measured outcomes have included place attachment (Kil, Holland, Stein, & Ko, 2012), community attachment (Arnberger & Eder, 2012), social interaction (Wood & Giles-Corti, 2008) and reported general health (van Herzele & de Vries, 2012). An essential, but not yet considered capacity that might be increased by outdoor recreation is psychological resilience, which is very relevant for personal coping with stress and difficulties at work and in private life (Fletcher & Sarkar, 2013). Masten (2001) defines psychological resilience as the "individuals' capacity to cope with stress and adversity". This capacity includes constitutional traits and abilities to cope with stressors (Campbell-Sills et al., 2006), and is considered to be protected and promoted by factors such as positive affect, self-esteem and self-efficacy (Fletcher & Fletcher, 2005), perceived control and optimism (Major et al., 1998), as well as self-reliance, independence, determination, mastery, resourcefulness and perseverance (Leppert, Koch, Brähler, and Strauss (2008). Lee, Sudom and Zamorski (2013) differentiated between intrapersonal factors of psychological resilience such as agreeableness, conscientiousness, extraversion, emotional stability, openness, positive effects and mastery; and interpersonal factors such as social support and social interaction. A more recent longitudinal analysis of psychological resilience in military personnel with combat experience revealed that mental health was mainly promoted by emotional stability, mastery and positive social interactions (Lee, et al., 2013). Emotional stability, and in particular self- or identity-related capacities, have also been found to be regulated and increased by people's active interaction with their (natural) environment (Twigger-Ross & Uzzell, 1993; Buchecker, 2009). In the international research literature, however, no studies could be found in the context of peri-urban recreation that had evaluated the effect of exposure to nature on psychological resilience.

Given the abovementioned gaps in the literature, we pursue our research goal by focusing on two main research questions: (a) what are the effects of residents' regular nearby outdoor recreation on their long-term well-being and long-term psychological resilience while controlling for their state of health and workloads as potential confounding factors, and (b) how do these effects compare with the effects of other leisure activities.

## 4. Method

### 4.1. Sample and procedure

The data for this study were collected in the context of a larger project on nearby outdoor recreation in peri-urban regions of Switzerland (Buchecker, Degenhardt & Kienast, 2012). The standardized questionnaire used for data collection built on qualitative

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