The influence of park and forest areas on the psychological state of urban residents

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Abstract. The influence of nature on the psychological state of a person needs to be studied in connection with ongoing urbanization. Every day taller houses are being built, groves are being cut down for the construction of new residential complexes and greenery in urban areas is being reduced. At the same time cases of urban population reporting symptoms of depression, apathy and anxiety are becoming more frequent. Our review allows us to consider how urban greening affects the mental well-being of the population and what is the relationship between interaction with green areas and the development of human personality. It has been established that nature influences the mental state and well-being of a person both directly and indirectly through physical activity. Presencing children in nature encourages the development of their cognitive sphere, improving memory and creativity. There is a direction called ecopsychology, the central method of which is ecotherapy, which affects human psychology through therapeutic activities in green areas.

1 Introduction

Natural landscapes are a natural comfortable environment for human physiology and mental development [1]. The human environment, and in particular nature, plays a crucial role in our mental well-being. It is noted that urban landscapes with a small number of green spaces have a negative impact on the psychological sphere of a person. Urban populations are increasingly showing symptoms of depression and anxiety.

Researchers have identified three main ways in which green spaces can affect human mental health. The first way is indirect: physical activity, as a type of recreation, promotes a positive mood and reduces stress levels. Most of the spaces for its implementation in an urban environment are surrounded by green spaces. The second way is interconnected with human socialization, since both planned and accidental social interaction often takes place in public green areas and, as has been shown, improves mental well-being. The third way is focused on relaxation and recuperation after strenuous activity, which affects the level of stress hormones. Green spaces, parks, and squares often become places for such restoration activities [2].

In general the process that connects our mental state with nature is called "biophilia". It implies our innate predisposition to interact with other forms of life, ideal conditions for
which green areas have. Thus, being in nature allows us to feel a sense of belonging and interconnectedness.

Nature is also able to distract us from everyday worries and anxieties. Being in nature allows us to focus on the present moment and appreciate the beauty of the world around us. This can help us let go of negative thoughts and emotions and feel more grounded and focused. This reduces the symptoms of depression and anxiety, improves mood.

In addition, it has been proven that nature has a positive effect on cognitive functions. Research has shown that spending time in nature can improve attention, memory and creativity. This may be partly due to the fact that nature gives a sense of novelty and surprise, which can stimulate the brain and promote learning and creativity.

The natural environment also gives a sense of peace and tranquility, which can be especially useful for those who are experiencing stress and tension. When a person spends time outdoors, the hormone cortisol is released in the body, which helps regulate stress levels. The soothing effects of nature also help to reduce blood pressure, heart rate and muscle tension, which are physical symptoms of stress.

However, we are influenced not only by direct exposure to nature, but also by access to it. Studies have shown that people living in urban areas with limited access to green spaces are more likely to suffer from mental disorders such as depression and anxiety. Access to nature in its various manifestations is one of the basic human needs and is necessary for our common well-being.

2 Review of research on the topic of human being in nature

2.1. Green areas in an urban environment

One of the most accessible ways for the urban population to contact nature is the presence of green areas and plantings in the city. Park areas, squares, trails specially equipped in park complexes and simple green spaces throughout the city can become an integral part of the therapeutic effect of the environment on humans. Let's consider the research of the influence of urban greening on the psychological well-being and mental health of a person.

Australian scientists have conducted a study of differences in the relationship between the availability of green spaces and mental health in populations of different ages and genders. They obtained correlations indicating the relationship between the accessibility of green spaces for mature men and older women with the improvement of their mental health [3]. At the same time older women's mental health was better precisely with a moderate level of accessibility to green areas.

Researchers from New Zealand have found that not only active use of green areas is beneficial for mental health, but also the green spaces observed around [4]. This study showed that a decrease in the distance to usable green spaces and an increase in the proportion of green spaces in large urban areas are associated with a decrease in the number of cases of anxiety and mood disorders in the urban environment.

The green environment is correlated with a lower chance of developing the most persistent symptoms of depression in a sample of more than 9,000 U.S.A. adolescents. This relationship was stronger in middle school students than in high school students, therefore, it is assumed that there are differences in the impact of green spaces on a person's mental health depending on their age [5].
2.2. Psychotherapeutic influence of hiking trips

A special place in the scientific field of the study of the influence of nature on human mental health is occupied by the study of the practice of hiking in terms of improving human psychological well-being and psychotherapeutic effects. In this case, first of all, a relationship is found mediated by physical activity and social interactions during hiking.

Physical activity has a positive effect on the functioning of the heart, brain and human health in general. It strengthens muscles, increases endurance, reduces the risk of stroke, coronary heart disease, helps maintain a normal body weight, helps normalize cholesterol levels [6]. Physically active people have stronger and healthier sleep, suffer less from mental disorders, and are more satisfied with themselves and their lives. Some studies indicate a lower risk of developing Alzheimer’s disease (45% lower) and dementia (28% lower) among active people aged 55-80 years than in inactive people. Physical activity has shown itself to be quite effective in reducing drug, tobacco and alcohol addiction [7].

Being present in a natural environment contributes to well-being and life satisfaction. During a hike and unity with nature, a person relaxes, the level of stress hormones decreases. Physical activity in the fresh, clean air allows you to concentrate on the positive aspects of life, get rid of accumulated negativity, teaches you to focus on yourself and your body, listen to yourself. Moreover, tourist routes, as a rule, are located in areas remote from cities, where there is no mobile connection, which helps cope with dependence on social networks [6].

Hiking is also a source of positive emotions: pleasure of physical activity or of close friendships, pleasure of contemplating nature and songs around the campfire, sense of danger, overcoming which gives a unique sense of joy in life. All these factors contribute to the emergence of strong deep emotions that persist for a long time after the hike trip [8].

2.3 Ecotherapy as the main method of psychology

The therapeutic effect of interaction with nature and green areas is confirmed by the presence of such a direction in psychology as ecopsychology. It was formed not so long ago – in the middle of the XX century. The term itself is attributed to the American philosopher and historian Theodore Rozsak, who used it in the book “The Voice of the Earth” [9]. This approach uses a special type of therapeutic effect is ecotherapy.

This is a psychological approach based on the fact that all people have a deep connection with the environment and the planet, and reconnecting with nature helps us feel happier, calmer and healthier. For the West, ecotherapy is a relatively new concept, but Eastern cultures traditionally perceive nature as a source of healing. For example, the practice of grounding, which is popular today, has its roots in traditional Chinese medicine, and forest bathing, popular in Japan, dates back to ancient Shinto and Buddhist practices.

A scientific review of research on ecotherapy was released in 2018 by the U.S.A. Environmental Protection Agency [10]. The authors found numerous confirmations of the impact of interaction with nature on health throughout life. For example, ecotherapy has proven effective in ADHD, it helps to ease pain, reduce stress, promote recovery, smooth out mood swings, and is useful for obesity, PTSD, and intellectual disorders.

As stated in the review, people who have been in contact with nature since childhood live longer and better. They are more active, have strong social connections, visit beautiful places more often, eat healthier foods and are less likely to get sick even in adulthood. Conversely, those who spent their childhood within four walls are more likely to be inert and sedentary, disconnected from society, eat unhealthy food and are more prone to diseases. The authors conclude that ecotherapy is now greatly underestimated, and the cost of its popularization will be much less than for medicines and traditional methods of treatment [10].
The benefits of human contact with nature are confirmed by a relatively recent study by psychologists from the University of Chicago: it showed that staying among the greenery improves memory and cognitive functions, reduces anxiety and stress [11].

There are many different types of ecotherapy. Let's look at the main ones.

**Meditation in the nature.** A forest, a pond shore, a remote corner of a park or an ecotrope so any secluded location is suitable. In this case, the setting and the soundtrack, filled with birdsong, the sound of water or wind, creates a calm and harmonious state and promotes deeper self-immersion.

**Ecotropics** can also be a source of personal transformations. For example, the "barefoot trail" in the “Losiny Ostrov” National Park in Moscow is a trail made of various natural materials of different stiffness, along which you need to walk barefoot (Fig. 1). Walking along this trail is not such an easy task as it may seem at first glance. The pain of small stones and cones, the tests of balance on high boulders and beams – all this tempers the will, because with each passing segment the way back becomes longer and more difficult. On such a path, self-control, self-control and determination are formed.

![Fig. 1. A segment of the ecotrope in the Moscow national park "Losiny Ostrov".](image)

**Physical exercises in the nature.** Running, yoga, cycling or other outdoor activity: such activity causes positive emotions in a person, allows him to take a break from the information noise.

**Adventure therapy:** camping, kayaking, hiking. Adventures related to "survival" in the wild and overcoming difficulties together are used in the treatment of mental disorders in adults and adolescents. They unite teams, and help a lonely traveler overcome depressive states, gain the will to live and undergo a personal transformation.

A biographical film "Wild" (2014) was shot about the psychotherapeutic effect of hiking on a person. The script of this film is based on the autobiographical book by Cheryl Strayed. The plot of this film tells about the heroine's solitary mountain journey, which was prompted by her depression, loss of interest in life associated with the loss of people close to her and loneliness. The heroine overcame many dangers on her way, coped with a lot of difficulties and the end of the route marked the completion of her transformation. This trip allowed her
to be alone with herself, to feel that her life was in her hands and her lifestyle depended only on herself.

**Forest bathing.** This practice actively engages all five senses and powerfully stimulates the body. It allows you to feel your body, "ground yourself" and switch your attention from psychological experiences to physical sensations. In addition to forest rivers and lakes, you can arrange bathing in a spring.

**Environmental measures.** Caring for nature is also a type of ecotherapy. Collecting garbage, planting trees, volunteering at an animal shelter helps you find purpose, restore optimism, and find like-minded people.

### 3 Discussion

There is a growing understanding of the mental and physical health benefits of being outdoors, including parks and forests (i.e. green spaces). It is known that mental and physical health are closely related. In addition to the mental manifestations listed above, staying in green spaces is associated with a lower level of aggression, a lower body mass index, as well as higher physical activity and self-assessment of health status. Although much of the research in this scientific field focuses on the use of or access to natural spaces, there is increasing evidence that visual (e.g., visible greenery) and even auditory (e.g., birdsong) exposure to nature can be beneficial, especially for mental health [2].

It is believed that contact with nature plays a crucial and irreplaceable role in the development of the brain. The natural environment, including green spaces, provides children with unique opportunities such as stimulating engagement, risk-taking, discovery, creativity, mastery and control, strengthening self-awareness, creating basic emotional states, including a sense of surprise, and enhancing psychological recovery, which are supposed to positively affect various aspects of cognitive development [12]. In addition, it has been established that people perceive cultural and anthropogenic landscapes differently, which indicates that only urban conditions cannot replace natural ones [13].

Review of the available information on the influence of nature on the psychological state of a person showed the following:

- Nature really has an impact on a person's mental state and well-being, both directly and indirectly.
- Interaction with green areas leads to a decrease in anxiety, stress and the level of symptoms of depression.
- The presence of green spaces and zones has an impact on children's cognitive abilities and their development.
- The presence of green spaces throughout the city area also has a beneficial effect on the mental well-being of a person.
- Hiking is a separate way to interact with nature. They allow a person to live deep emotions that affect the further psychological state of a person.
- Ecopsychology and ecotherapy are aimed at psychotherapeutic effects on humans through practices of interaction with nature.

### References

1. E. Goryacheva, I. Vlasova, R. Lukyanov, The art of creating the landscape and green architecture of a million city for the harmonious development of personality. E3S Web of Conferences 431, 09014 (2023) https://doi.org/10.1051/e3sconf/202343109014


6. Zh. A. Gunicheva, E. N. Chingina, The influence of hiking on a person’s physical and mental health. E-Scio 2(77), 156–160 (2023)


