

The Background, Significance and Path of the Research on the Impact of Forest Recreation on Urban Residents' Subjective Well-Being

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ABSTRACT. *The pressure of urban living environment caused by noise, population density, work load and other factors has adverse effects on health. Therefore, urban residents relieve the pressure and improve their subjective well-being through forest recreation. This study analyzes the research background of this problem, clarifies the significance of the research, and constructs the research path according to the idea that perceived stress affects the physical and mental health through forest recreation, and ultimately affects the subjective well-being of the recreational people.*

KEYWORDS: *Forest recreation, Urban residents, Subjective well-being*

1. Introduction

Since the 1980s, China's industrialization and urbanization process has been accelerating. The urbanization rate has been increasing by 1% per year for more than 20 years, and the urban population has exceeded 50% [1]. High urbanization leads to dense population, traffic congestion and changes in natural environment in modern cities. The pace of life of urban residents is speeding up, and the pressure of social competition is increasing, which has a negative impact on the physical and mental health of urban residents, and reduces people's happiness [2]. Noisy environment such as subway, bus and street in the city is easy to cause headache, dizziness, affect sleep, fatigue and restlessness [3]. Due to these environmental impacts, urban residents have a higher stress index than rural residents [2], and are more prone to mental health problems such as stress, emotional disorders, anxiety, etc. [4]. The results show that Chinese people's stress level has leaped to the forefront of the world, and the number of people suffering from depression and anxiety has increased sharply with the aggravation of stress problems [5]. The mental health problems related to stress have become a major social problem in China.

2. Background of Research on the Influence of Forest Recreation on Urban Residents' Subjective Well-Being

2.1 Theoretical Background

Long term stress will have a serious and harmful impact on all important organs, including the heart and blood vessels, and induce a variety of physiological diseases and mental health problems. Under the condition of pressure, human body organs will react in many different ways. If the pressure cannot be restored for a long time, these reactions may cause harmful changes in the cardiovascular system and nervous system of human body, and cause cerebrovascular disease, heart disease, arteriosclerosis, type II diabetes, hypertension and various kinds of inflammation, in particular, many mental disorders are closely related to long-term and incorrect stress responses, including schizophrenia, anxiety syndrome, especially depression and fatigue disorder syndrome [6-8].

Long term stress may lead to insufficient sleep, reduced exercise, increased smoking and drinking behaviors, and increased risk of stress-related diseases [9]. In Contemporary Western society, many physical diseases, including coronary heart disease and cancer, are closely related to sedentary, sedentary lifestyle and chronic long-term stress [10-11]. Data from empirical investigations show that the impact of the pressure of urbanization development on the mental health of urban residents in China has affected brain function and led to an increase in the incidence and aggravation of mental illness [12]. So, if people can't recover from stress, their health can be negatively affected.

The research on the impact of forest recreation on subjective well-being is mainly based on the important theory of Restorative Environment. Restorative environment refers to the environment setting that has the effect of restoring and renewing the physical and mental resources and abilities that humans are constantly consuming[13]. According to Korpela, Hartig, Kaiserz and Fuhrer (2001)[14], restorativeness refers to the recovery process after stress or fatigue perception, including strengthening the mood, stabilizing emotions, restoring intentional attention, and potential self-reflection. The positive effects of restorative environment on humans can be summarized from three aspects: short-term recovery of mental fatigue, rapid recovery from physical diseases, and long-term comprehensive improvement of human health and well-being. An environment with these positive effects can be called recovery Sexual environment[15]. Because the restorative environment has a positive effect on an individual's cognitive level and emotional state, it can promote individual sobriety, clear thinking, restore attention, and enhance vitality[16]. Since the 1980s, Kaplan and other scholars have a large number of theoretical and empirical studies have been conducted around the restorative environment, the theory of attentional restoration has been proposed, and the restorative environment scale has been developed and revised [17-18]. Studies have confirmed that the concentration of air anions in forests is 200 times the concentration of negative ions in urban air[19]. Air negative ions have the function of restoring nerve excitement in the human body, and can change the acidity and alkalinity in the human blood, promote blood circulation, improve the activities of various oxidases in the human body, and enhance the immune system[20-21]. High concentration of air anion can also increase the number of platelets, blood proteins, red blood cells, reduce blood pressure and heart rate, improve sleep quality, increase appetite, etc., and also reduce dust, kill bacteria, improve the surrounding air quality [22]. Many research results have confirmed that forest recreation activities have physiological health care functions such as increasing blood oxygen content, promoting metabolism, improving cardiopulmonary function, improving human immunity, etc., as well as psychological health care effects such as relaxing the body and mind, eliminating fatigue, and slowing down stress of leisure people [23].

2.2 Practical Background

In order to relieve the pressure, improve the body immunity, relax the body and mind, reduce the mental fatigue and pressure brought by the urban environment and work, urban residents are eager to participate in the outdoor leisure activities based on nature [24]. Among them, the forest in the outskirts of the city has become an important leisure destination for urban residents. Because the forest environment can make the leisure people awake, improve sleep quality, restore attention, relieve depression and anxiety symptoms, and enhance the sense of emotional stability [25-26], it has a positive impact on people's physical and mental health. Therefore, in the field of environmental psychology, forest, as a restorative environment, has been widely concerned by scholars at home and abroad and conducted in-depth research[27-28]. The tourism activities of improving physical health, pursuing physical and mental relaxation and maintaining physical and mental stability belong to the "healthy tourism" of pursuing healthy life. In the field of tourism, health tourism includes spa, beauty, meditation and other tourism methods. There are many similarities between nature-based tourism activities and these tourism methods. They all pursue physical health and psychological security, and ultimately improve the subjective well-being of tourists. With the popularity of the concept of "lifelong health" [29], the research on forest tourism activities based on restorative environment and the effect of forest restoration has been concerned by scholars. Kim (2015) research shows that the regulation of natural emotions has a positive impact on attention recovery and ultimately improve the quality of life through the forest environment [30]. Through the research on the physiological and psychological effects of "forest therapy" on middle-aged women, it is confirmed that forest therapy can significantly reduce the pulse frequency, the level of salivary cortisol, the increase of positive emotions and the decrease of negative emotions. The results show that forest environment has a positive impact on human physiology and psychology [28]. Cheng (2019) found that tourism behavior in national parks and other natural environments can improve tourists' subjective well-being [31]. Long term exposure to natural environment such as forest and green land can promote individual happiness through physical exercise, including improving vitality, happiness, vitality and creativity[32].

3. Research Significance

3.1 Theoretical Significance

Quite a number of studies have shown that visit to green space and exposure to natural elements can reduce psychological stress, increase mental health, and contribute to the recovery of diseases [33-36]. More exposure to natural environment has a positive impact on the physical and mental health of urban residents [37-38]. The incidence rate of coronary heart disease, neck and shoulder disease, back disease, depression, anxiety, upper

respiratory tract infection, asthma, migraine, dizziness, intestinal diseases, urinary tract infection and other diseases that frequently contact green space residents are significantly lower than those of residents living in [39], who live far away from the greenbelt. As a typical natural green environment, forest has high concentration of negative air ions, smell based health care resources such as plant fragrance, hearing based health care resources such as the soothing of the wind in the pines and birdsong, vision based health care resources such as forest vegetation (leaves, flowers and fruits), mountains and water bodies, and touch based health care such as forest microclimate and low natural radiation level Resources [40], and the mild climate, sweet smell, bright, high saturation color, pleasant voice, bright place and other environments will promote people to have positive emotions. Positive emotions contribute to learning, work, curiosity and creativity [9]. Based on attention recovery theory and stress relief theory, Mo (2019) studied the stress relief effect of forest health tourism and found that forest health tourism has a positive role in promoting stress relief, the pressure level of tourists has a regulatory effect in the relationship between forest health tourism experience and recovery experience, and the pressure relief or recovery experience of high pressure tourists is more intense [5]. Based on this, it is of great significance to study the urban residents' leisure in the forest environment in their daily life and relieve the pressure of the leisure people through the restorative function of the forest environment, so as to improve the physical and mental health of the leisure people and ultimately improve their subjective well-being. In the context of the pursuit of healthy leisure activities, the research also provides ideas for the management and operation of forest parks and other green parks in the suburbs of the city, helps forest industry managers understand the willingness of urban residents to forest recreation, so as to better position the forest recreation in the suburbs of the city, design and develop forest recreation products, and improve people's leisure experience, Improve people's happiness. The combination of tourism psychology and environmental psychology is a further extension of tourism theory.

3.2 Practical Significance

More and more researches are exploring the relationship between urban life and emotional and behavior disorder, mood disorder and nervous system diseases. Although the physical health level of urban residents is better than that of rural residents due to education, economy, medical facilities and other reasons, the mental health of urban residents is lower than that of rural residents [41]. With the advancement of urbanization in China, various diseases of urban residents are gradually increasing, and psychological problems are increasingly prominent. Crowded people, noisy traffic, high altitude and other environments in urban life can cause people's negative emotions, which can make people feel anxious or pessimistic. According to the results of the survey on the health status of the main sub-health population (see Table 1) and the survey on the mental health status of the key chronic disease population (see Table 2) in the 2017 white paper on the mental health of Chinese urban residents, it shows that the physical health is closely related to the mental health status.

Table 1 Mental Health Status of Main Sub-Health Population in Chinese Cities (%)

	Thyroid nodule	Benign breast disease	Fibroid	Obesity	Insomnia
Depression + anxiety	19.7	32.7	24.7	18.6	35.7
Simple depression	23.4	25.1	15.6	14.2	36.2
Pure anxiety	21.5	22.3	33.8	25.7	24.7

Note: the above survey is based on 28620 people

Table 2 Mental Health Status of Key Chronic Disease Population in Chinese Cities (%)

	Tumor patients	Cerebral infarction patients	Myocardial infarction patients	Diabetes	Hypertension	Coronary heart disease
Depression + anxiety	43.5	25.5	27.3	21.3	18.7	26.2
Simple depression	27.6	29.8	25.6	17.6	29.1	19.8
Pure anxiety	10.8	13.6	24.7	27.4	24.5	28.4

Note: the above survey is based on 33780 people

In order to promote the construction of a healthy China and improve people's health, China released the outline of "healthy China 2030" in 2016. Under the guidance and promotion of the outline, Chinese people are paying more attention to leisure activities and healthy life. With the development trend of outdoor leisure

activities based on the natural environment, urban residents hope to relax and pursue health in the way of leisure by using the forest environment in the suburbs of the city [29]. In this context, various forest tourism activities aiming at health have become one of the research focuses in the field of tourism. Wen (2012) empirically studied the mental health function of forest recreation environment and revealed the mechanism of mental health function[3]. Li and Peng (2019) take Yandang Mountain National Forest Park in Zhejiang Province as an example to comprehensively evaluate the development conditions of forest health tourism and put forward ideas for the development of forest health tourism[42]. Han (2011) systematically discussed the basic theory and method of urban forest health function evaluation, and established the evaluation index of urban forest health function[43]. Li and Xu (2018) established an evaluation system for the development potential of forest health tourism, providing a new research perspective and practical support for the development of forest health tourism[44]. Based on the theory of Flow experience and well-being, Chen (2017) studied the relationship among Flow experience, well-being and leisure willingness in forest recreation[41]. Based on the theory of attention recovery and stress relief, Mo (2019) analyzed the impact of forest health tourism on the stress relief of tourists[5]. Through the study of forest recreation activities, it is helpful to improve the physical and mental health of urban residents and enhance the happiness of people's life.

4. Study on the Influence of Forest Recreation on Urban Residents' Subjective Well-Being

4.1 Research Ideas

Based on the theory of restorative environment, this paper analyzes the impact of urban forest recreation on Residents' subjective well-being. Forest environment is a typical restorative environment, which can effectively alleviate people's fatigue. The theory of restorative environment mainly includes the theory of attention restoration and the theory of stress relief. This paper is mainly based on the theory of attention recovery. The theory of attention recovery was put forward by the environmental psychologists Kaplan and his wife. They summarized the characteristics of restorative environment and revealed the mechanism of recovering attention and alleviating attention fatigue through restorative environment, and believed that if an individual stays in a restorative environment for a long time, he will gradually feel clear headed, directional attention will gradually recover, and his inner thoughts will be reduced. If he stays for a long time, he will finally review his life and make plans for his life and future. According to the characteristics of restorative environment proposed by Kaplan and many previous research results, restorative environment such as urban park, urban green space and forest park can effectively alleviate people's perceived pressure, enhance vitality and improve people's physical and mental health. Therefore, the overall idea of the study is, based on the theory of restorative environment, whether the pressure of urban residents will be relieved through forest recreation, and whether forest recreation has a positive impact on physical health, mental health and subjective well-being.

4.2 Basic Research Content

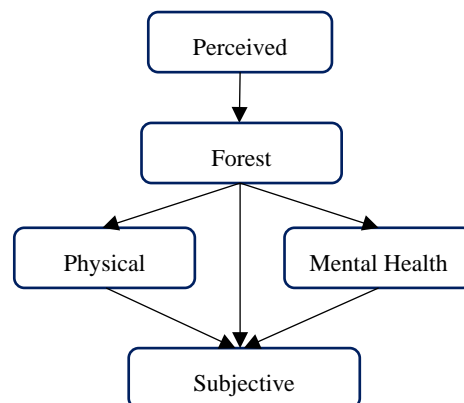


Fig.1 Research Path

Based on the above research ideas, the specific path of the study is determined, and its structure and content are shown in Figure 1. Specifically, the basic contents of the research on the impact of forest recreation on the subjective well-being of urban residents include: first, measuring the pressure perceived by urban residents, and

objectively reflecting the stress state of urban residents. Can forest recreation reduce stress, improve physical and mental health, and ultimately increase the subjective well-being of urban residents? Based on these issues, a research model is constructed to analyze the impact of urban residents' forest recreation on subjective well-being.

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