

Artículo de investigación

Perceptions of forest contact and its therapeutic role in university students in South Korea

Percepciones sobre el contacto forestal y su función terapéutica en estudiantes universitarios de Corea del Sur

Percepções de contato com a floresta e seu papel terapêutico em estudantes universitários na Coreia do Sul

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Abstract

This paper focuses on the influence of forest experience and its positive implications for undergraduate students. A survey was conducted of 114 undergraduate students in South Korea. The results show that 90.4% of the students reported that forest experience is useful for mental health. The students had experience in forests during the last year, such as visiting one for recreation (8.8%), participating in activities (14.9%), tracking (32.5%), climbing mountains (13.2%), walking in the park (23.7%), and camping (7%). Korean students who believe that the forest experience has a healing function significantly happier than those who did not. There were significant differences between the groups of beliefs or non-beliefs and the level of happiness ($p < .001$). Also students who have experience in the woods regularly are significantly happier than those who did not. Therefore, in this document, we investigate and analyze the perception of forestry experience and its healing function for university students. We propose the implication of the benefit of the forestry experience.

Keywords: forest, happiness, healing function

Resumen

Este documento se centra en la influencia de la experiencia forestal y sus implicaciones positivas para los estudiantes de pregrado. Se realizó una encuesta a 114 estudiantes de pregrado en Corea del Sur. Los resultados muestran que el 90.4% de los estudiantes informaron que la experiencia forestal es útil para la salud mental. Los estudiantes tuvieron experiencia en bosques durante el último año, como visitar uno para recreación (8.8%), participar en actividades (14.9%), rastrear (32.5%), escalar montañas (13.2%), pasear en el parque (23.7%), y camping (7%). Los estudiantes de Corea que creen que la experiencia forestal tiene una función de curación significativamente más feliz que aquellos que no la tenían. Hubo diferencias significativas entre los grupos de creencias o no creencias y el nivel de felicidad ($p < .001$). También los estudiantes que tienen experiencia en los bosques regularmente son significativamente más felices que aquellos que no lo hicieron. Por lo tanto, en este documento, investigamos y analizamos la percepción de la experiencia forestal y su función de curación para los estudiantes universitarios. Proponemos la implicación del beneficio de la experiencia forestal.

Palabras claves: Bosque, felicidad, función curativa.

Resumo

Este artigo enfoca a influência da experiência da floresta e suas implicações positivas dos estudantes de graduação. Uma pesquisa foi realizada com 114 estudantes de graduação na Coreia do Sul. Os resultados mostram que 90,4% dos estudantes relataram que a experiência florestal necessária e útil para a saúde mental. Os alunos tiveram experiência florestal nos últimos 1 anos, como visitar a floresta para recreação

(8,8%), participar de atividade (14,9%), rastreamento (32,5%), alpinismo (13,2%), passear no parque (23,7%) e camping (7%). Os estudantes da Coreia que acreditam que a experiência na floresta tem uma função de cura significativamente mais feliz do que aqueles que não o fizeram. Houve diferenças significativas entre grupos de crença ou não-crença e o nível de felicidade ($p < 0,001$). E também os alunos que têm uma experiência regular de floresta significativamente mais feliz do que aqueles que não têm. Portanto, neste trabalho, investigamos e analisamos a percepção da experiência florestal e sua função de cura para alunos de graduação. Propomos a implicação do benefício da experiência florestal.

Palavras-chave: Floresta, felicidade, função de cura

Introduction

Recently, exhaustion of natural resources, environmental pollution and climate change threatens human well-being. Severe air pollution causes health problems and can actually lead to a worse quality of life. Research suggests that contact with nature can be beneficial, for example leading to improvements in mood, cognition, and health (Capaldi et al, 2014). And also, forests give us great landscape, fresh air, phytoncyde, or contribute to global gas balances. Many researchers have been studying the role of forests and people's perceptions. These efforts have shown the importance of forests in urban settings. Trees and forests play a significant role in the urban environment and have many important meanings to urban residents (Dwyer et al., 1991). Like other developing countries, Korea faces many environmental problems caused by rapid development and urban system. So, urban has a poor forest area and air pollution problem. In China, urban residents with high levels of air pollution report low life satisfaction (Smyth et al., 2008). Maibach et al (2009) noted that a quarter of Americans feel afraid about climate change and global warming. Noble (2007) addressed that the worry about global warming leads self-reported symptoms of sleeplessness, irritability, and panic attacks. Nature experience appears to predict these environmental concerns (Nisbet et al., 2009). People who spent time in nature are more likely to engage in a variety of pro-environmental behaviors (Mayer and Frantz, 2004; Nisbet et al., 2009; Tam, 2013a). And also, air purification by trees can reduce air pollution reduction costs. So, forests environments affect human wellbeing and increase quality of life.

- **Nature experience in urban:** In general, many people lives in urban (United Nations Population Division, 2002). Habitat (2001) mentioned that about 75% of people lived in urban in the developed countries. Approximately half of the total South Korean population also

lives in urban area (Kim et al., 2016). Urban life gives many stresses to human. So urban residents seek to form of stress relief (Frumkin, 2001). Managing stress may play a significant role in maintaining good health. Nature gives us so many benefits including pleasant landscape, phytoncyde, and fresh air. And also, nature may contribute to maladaptive functioning (Kellert, 1997). Most adult Koreans are likely to visit a forest area including national park once or more in a year (Kim et al., 2003). The major influencing factor to this action is that they believe these forest experiences can enhance their mental functioning and health. Green spaces are therefore important for human health and wellbeing.

Nature has a positive influence on mental health. Ulrich (1981) noted that park experience may reduce stress. It can promote pleasant moods (Nisbet & Zelenski, 2011). Ulrich (1984) also founded that patients who see trees and nature recovered quickly that those who did not. Kaplan (1983) mentioned that nature experience enhances mindfulness and peacefulness. Research about forest experience verifies beliefs about mental health (Hartig et al., 1991; Conway, 2000). More research findings have pointed that forest environments provide better emotional, physiological, restorative effects (Hartig, et al., 2003; Laumann et al., 2003; Morita et al., 2007). Furthermore, forest experiences seem to have revitalizing effects (Ryan et al., 2010). Maas et al (2006) reported that green space brought promote better health. Roe and Aspinall (2011) reported that walking in forest affect to emotional and cognitive restoration. In Korea, walking in forests is a common activity and is believed to promote health and healing function. So, many koreans go to walk in forest to breathe in fresh air.

- **Forest and wellbeing:** Additionally, Forest can have a strong, relaxing effect on people.

Many studies have provided that a forest experience can contribute to happiness, reducing stress, and mind and mental health (Ulrich, 1984; Cimprich, 1993; Shin, 2007; Nisbet and Zelenski, 2013). Four-fifths of the respondents in a study of Morton Arboretum users described their favorite settings as serene, peaceful, and restful (Schroeder, 1988). Ulrich and his associates have actually measured the relaxation effects associated with views of trees. They found that individuals who viewed urban scenes had slower heartbeats, lower blood pressure, and more relaxed brain wave patterns than individuals who did not (Ulrich, 1981). Colin et al (2014) found that those who are more connected to nature tended to experience more positive affect, vitality, and life satisfaction compared to those less connected to nature. Forest activities cited as providing both preventive and therapeutic health benefits (Kaplan, 1995). Kim et al (2004) found that the effects of meridian exercise on anxiety, depression for Korean female undergraduates. In Sum, Forest experiences have been correlated with well-being and health.

Forest contacts touch our lives in so many ways, especially happiness. The present article places the forest experience in the context of happiness. Nature experience is associated with increased happiness (Berman et al., 2008, 2012; Mayer et al., 2009; Nisbet and Zelenski, 2011; MacKerron and Mourato, 2013; White et al., 2013). Many researchers report that forest experience and happiness connection (Frantz and Mayer, 2009; Kuo et al., 1998). Attention for happiness has been growing steadily. However, few studies look at the association between forest contacts and happiness. The happiness experienced by university students affects their health and quality of life (Lee, 1997). Nonetheless, the happiness of university students has received relatively little attention compared to that of children, adolescents and married women. Therefore, the aim of this study was to explore the perception of forest contacts and its self-healing function in a sample of Korean undergraduates. Spielberger et al (1970) also noted that forest experience facilitates psychological and physiological relaxation. Therefore, forest experience promotes health by restoring mental fatigue (Kaplan, 2001). Kuo et al. (1998) reported that forest helps people to relax, and reduce negative emotion. Shin et al (2007) also reported that forest experience has positive effect to mental wellbeing and Gang (2012) mentioned it promotes emotional

wellbeing. Forests contribute to human health and wellbeing by providing a suitable environment for recreation and rehabilitation.

Method

- **Subjects:** The subjects of this study were 114 university students in Korea. They were selected from universities located in the metropolitan areas of South Korea. Of the study population, 68 participants (59.6%) were female and 46(40.3%) were male. Of those students, 30(26.3%) were in 1st year, 46(40.4%) were in 2nd year, 30(26.3%) were in 3rd year, and 8(7.0%) were in 4th year. The students ranged in age from 20-30 years, and the mean age is 21.6.

- **Procedures:** The data have been collected through a survey. This study developed open ended survey from that asks 5 questions about forest experience within the past 1 year, 3 questions about its healing function and 3 questions of happiness. Response formats were open or closed. The survey questions addressed a broad range of issues about forest, ranging from image of forest experience, motives for forest contact, forest contact attitudes, and perception of forest's healing functions. Sample questions are "What kind of forest experiences do you have?" "Do you visit forest regular?" "What's the benefit of forest contacts?" "Do you have any idea of future forest program?" The three item happiness scale (Choi, 2016; $\alpha = .67$) asked participants and was evaluated between 1 (strongly disagree) to 5 (strongly agree). The survey was administered at the participants' lecture room. They were debriefed by telling them the aims of the study and none refused to participate in this study. In this paper, the analysis will depend on the following issues:

- 1 Motives for nature: Frequency of visits to forest areas, activities undertaken (hiking, trekking, forest watching, photography, and etc.).
- 2 Perceived benefits: phytoncide, enhance health
- 3 Happiness: happiness indicators

- **Data Analysis:** Data were summarized as means and standard deviations (SD) or frequencies. And student t test was conducted using the happiness level. All analyses were conducted using the Statistical Package for the Social Sciences (SPSS) Version 19.0 for Windows.

Results

- **Forest contacts:** Subject's forest contacts are summarized in Table 1. Of these individuals, 37 (32.5%) reported eco-tracking, 27(23.7%)

reported art program, 17(14.9%) reported writing, 15(13.2%) reported mindfulness, 10(8.8%) reported recreation, and 8(7%) reported climbing. Many students were prone to spent time in eco-tracking and art program in the forest.

Table 1. Students' forest contacts (N= 114)

Forest experience	N (%)
Climbing	8(7.0%)
Art program	27(23.7%)
Mindfulness	15(13.2%)
Eco-tracking	37(32.5%)
Recreation	10(8.8%)
Writing	17(14.9%)

- **Perceived benefit:** Student's perception of forest contacts are summarized in Table 2. Approximately 32.5 % of students preferred to stay about 180minutes, 26.3% of students preferred to stay about 60minutes, and 24.6% of students preferred to stay about 30minutes at forest area. 90.4% of students reported that forest contacts need to them for subjective well-being. On the other hand, 9.6% of students

reported forest contacts doesn't need to them for subjective well-being. Approximately 46.5 % of students reported that they need forest contacts because living urban has lower green space, and 36% of students reported the reason for mental health. These results show that students valued forest contacts and mental health.

Table 2. Perception of forest experience (N= 114)

Content		N (%)
Stay time	20(min)	5(4.4%)
	30(min)	28(24.6%)
	40(min)	5(4.4%)
	50(min)	4(3.5%)
	60(min)	30(26.3%)
	180(min)	37(32.5%)
	Over 180(min)	5(4.4%)
Need for forest contacts	Yes	103(90.4%)
	no	11(9.6%)
Select reason	Education	9(7.9%)
	Mental health	41(36%)
	Live urban	53(46.5%)
	n/a	11(9.7%)

Student's perception of forest healing function is summarized in Table 3. Approximately 90.4 % of students believed forest contacts have healing function. Only 9.6% of students reported they don't believe it. There are several reasons for that belief. 50% of students reported landscape, 29.8% of students reported fresh air, and 10.5% of students reported clear mind. About benefit

of forest contacts, 28.1% of students reported phytoncide, 16.7% of students reported lower stress, 12.3% of students reported health and happiness, and 10.5% of students reported mind and body rest. Over 90% of students believed that forest experiences help mental and physical health and rest.

Table 3. Perception of forest healing function (N= 114)

Content		N (%)
Healing function	Yes	103(90.4%)
	no	11(9.6%)
Reason	Fresh air	34(29.8%)
	Clear mind	12(10.5%)
	Landscape	57(50%)
	n/a	11(9.7%)
	Benefit	
	health	14(12.3%)
	Lower stress	19(16.7%)
	happiness	14(12.3%)
	Mind & body rest	12(10.5%)
	phytoncide	32(28.1%)

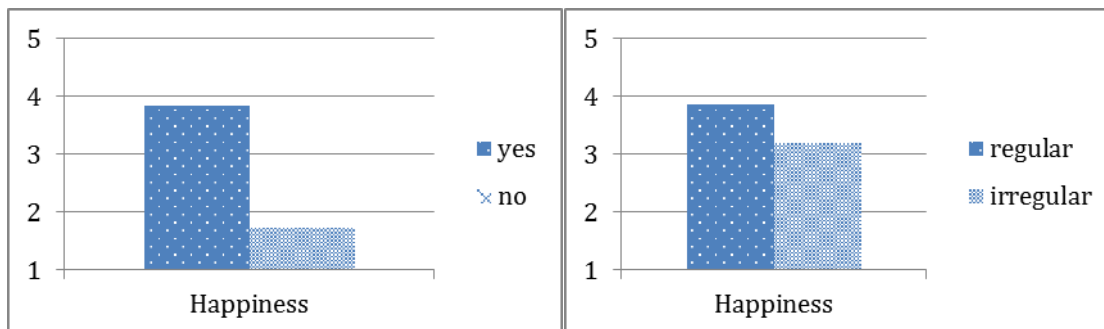
- **Happiness:** To analyze the differences between groups on happiness, a student t test was performed. The analysis showed the following significant differences. Table 4 presents the means and standard deviations by group. The results demonstrate clear differences between belief group and non-belief group ($P < .001$).

Students who believe forest contacts have healing function tended to be happier than who does not. And also students who have regular forest contacts tended to be happier than who does not ($P < .01$).

Table 4. healing function and happiness (N= 114)

Group	N	M	SD	t value
belief group	103	3.83	.84	8.154***
non-belief group	11	1.73	.46	
Regular group	74	3.86	.89	3.465**
Irregular group	29	3.20	1.11	

* $p < .05$, ** $p < .01$ *** $p < .001$



Discussion

The purpose of this study was to explore the perception of the forest contacts and its healing function. Total 114 undergraduates were participated on this survey. According to the results of this study, about 90.4% of students reported the significance of forest contacts. Approximately 60% of students reported that they preferred tracking and strolling in the park. Approximately 60% of students preferred to stay about 180 to 60minutes at the forest area. 90.4 % of students believed forest contacts have healing function. They reported healing function of forest contacts are phytoncide (28.1%), lower stress (16.7%), health and happiness (12.3%), and mind and body rest (10.5%). Over 90% of students believed that forest contacts help mental and physical health and rest. And also, the results demonstrate clear differences between belief group and non-belief group ($P < .001$). Students who believe forest contacts have healing function tended to be happier than who does not. And also students who have regular forest contacts tended to be happier than who does not ($P < .01$). This implies that forest experiences can be very helpful to student's well-being. An encouraging fact is that a significant proportion of the participants (90.4% of students) expressed a positive perception to forest contacts.

Findings from our study indicate that forest contacts are associated with mental health. The result consistent with Ulrich (1984) and Capaldi, Dopko, & Zelenski (2014) who suggests that contact with nature can be beneficial to mental health. Additionally, our study found that forest contacts are associated with higher levels of happiness. This result is consistent with López-Pousa et al (2015) who reported a positive relationship between exercise (i.e. walking in forests) and positive emotion, and Morita et al (2007) who examined the effect of walking through forests on health condition. Canadian

Health Survey found that women were happier when engaged in physical activities (Stephens, 1988). In this sense, forest contacts give us a huge healing capacity.

As we conducted this work, the results of this study suggest that forest contacts can help student's happiness and mental health. This kind of optimistic attitude shows that these forest contacts need for students and it have many values. The values of forest contacts in urban areas are significant. Some of these values are very important but are not often considered in educating. Educators need to understand the value of forest contacts and to effectively adapt to academic programs. Research on student's perceptions on forest contacts can play a key role in the positive educational process.

Our studies of the perception of forest contacts confirm the value of "nature" as a significant contributor to the health and happiness of students. The results of this study should be useful for establishing policies and programs for welfare. Therefore, for sustainable education, it is important to have various forest curriculums suitable to the Korean urban environment. This study will contribute to make advances in student's happiness and sustainable society.

Although the results of this study can provide significant implications for student's happiness, this study may have limitations due to inclusion of study participants from specific regions and age groups. In addition, additional exploration on effect of forest experience and happiness is also necessary. These efforts are expected to enhance student's happiness and lead to well-being society.

Reference

Ajournalarticle, R. H., Spud, P. T., & Psychologist, R. M. (2002). Title of journal article

- goes here. *Journal of Research in Personality*, 22, 236-252.
- Brereton, F., Clinch, J. P., & Ferreira, S. (2008). Happiness, geography and the environment. *Ecological Economics*, 65(2), 386-396.
- Capaldi, C. A., Dopko, R. L., & Zelenski, J. M. (2014). The relationship between nature connectedness and happiness: a meta-analysis. *Frontiers in psychology*, 5, 976-991
- Cimprich, B. (1993). Development of an intervention to restore attention in cancer patients. *Cancer nursing*, 16(2), 83-92
- De Santo, N. G., Altucci, P., & Giordano, C. (1976). *Actinomyces peritonitis* associated with dialysis. *Nephron*, 16(3), 236-239.
- Dochinger, L. S. (1980). Interception of airborne particles by tree plantings. *Journal of Environmental Quality*, 9(2), 265-268
- Dwyer, J. F., Nowak, D. J., Noble, M. H., & Sisinni, S. M. (2000). Connecting people with ecosystems in the 21st Century. USDA Forest Service, RPA Assessment
- Dwyer, J. F., Schroeder, H. W., & Gobster, P. H. (1991). The significance of urban trees and forests: toward a deeper understanding of values. *Journal of Arboriculture*, 17(10), 276-284
- Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of environmental psychology*, 15(3), 169-182
- Kim, K. B., Cohen, S. M., Oh, H. K., & Sok, S. R. (2004). The Effects of Meridian Exercise on Anxiety, Depression, and Self-esteem of Female College Students in Korea. *Holistic Nursing Practice*, 18(5), 230-234
- Luechinger, S. (2009). Valuing Air Quality Using the Life Satisfaction Approach. *The Economic Journal*, 119(536), 482-515
- López-Pousa, S., Pagès, G. B., Monserrat-Vila, S., de Gracia Blanco, M., Colomé, J. H., & Garre-Olmo, J. (2015). Sense of Well-Being in Patients with Fibromyalgia: Aerobic Exercise Program in a Mature Forest—A Pilot Study. *Evidence-Based Complementary and Alternative Medicine*, 1-9
- Morita, E., Fukuda, S., Nagano, J., Hamajima, N., Yamamoto, H., Iwai, Y., & Shirakawa, T. (2007). Psychological effects of forest environments on healthy adults: Shinrin-yoku (forest-air bathing, walking) as a possible method of stress reduction. *Public health*, 121(1), 54-63
- Morita, E., Nagano, J., Fukuda, S., Nakashima, T., Iwai, Y., Yamamoto, H., & Hamajima, N. (2009). Relationship between forest walking (shinrin-yoku) frequency and self-rated health status: cross-sectional study of healthy Japanese. *Japanese Journal of Biometeorology*, 46(4), 99-107
- Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2008). The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior*. 41, 715-740
- Schroeder, H.W. (1988). The experience of significant landscapes at Morton Arboretum, pp. 378-381. In *Proceedings of the 1987 Society of American Foresters National Convention*, October 18-21, 1987. Minneapolis, MN
- Shin, W. S., Shin, C. S., Yeoun, P. S., & Kim, J. J. (2011). The influence of interaction with forest on cognitive function. *Scandinavian Journal of Forest Research*, 26(6), 595-598
- Stephens, T. (1988). Physical activity and mental health in the United States and Canada: evidence from four population surveys. *Preventive medicine*, 17(1), 35-47
- Ulrich R.S. (1981) Natural versus urban scenes: some psychophysiological effects. *Environment and Behavior*, 13, 523-556
- Ulrich, R. (1984). View through a window may influence recovery. *Science*, 224-225
- Van Praag, B., & Baarsma, B. E. (2005). Using happiness surveys to value intangibles: The case of airport noise. *The Economic Journal*, 115(500), 224-246
- White, M. P., Alcock, I., Wheeler, B. W., & Depledge, M. H. (2013). Would you be happier living in a greener urban area? A fixed-effects analysis of panel data. *Psychological science*, 24(6), 920-928.