

# Utilization of Forest Healing Resources for Improving the Effect of Forest Healing Therapy Program

Joo Ho Hwang<sup>1</sup>, Hyojung Lee<sup>1</sup>, Kyoung Min Lee<sup>1\*</sup>

<sup>1</sup>[Resources Research Team, Forest Welfare Research Center, Korea Forest Welfare Institute, Yeong-ju, Korea]

## I. Introduction

- In the past, forests were considered a means to use wood.
- But recently, the number of people visiting forests for forest welfare (healing and education) has increased and the perception of forest use has changed.
- Forest welfare facilities in Korea have developed and provided various forms of forest healing and educational programs to the public.
- Forest therapy programs have positive effects on mental health, stress relief, improvement of emotion, psychology, and facial expressions.<sup>1)</sup>
- Forest therapy programs development is mainly developed according to age, location, and characteristics of the target, but there are insufficient cases of program development using forest healing resources.
- In addition, there are study cases of program effectiveness verification through pre-post comparison, but there is also a lack of cases of improved healing effect verification when using forest healing resources.
- Therefore, this study was conducted to find out the effect of forest healing programs using forest healing resources on the improvement of healing effects.

## II. Methods

- **Site** : Juchi District Forest trail at the National Center for Forest Therapy, Korea Forest Welfare Institute, in Yeong-ju.
- **Subjects**
  - **Public officials** : 2018 control group(n : 30), 2019 experimental group(n : 30)
  - **Youths** : 2018 control group(n : 37), 2019 experimental group(n : 49)
- **Improved program utilizing forest healing resources**
  - **Public officials** : High-stressed officials used serotonin resources to improve positive emotion.
  - **Youths** : The program of youths focused on increasing the green color sensitivity ratio to improve the Index of Greenness.
- **Therapy programs**
  - Program A : The control group participated in the existing forest therapy program.
  - Program B : The experimental group participated in existing programs utilizing selected healing resources based on the target characteristics.
- **Survey** : Positive emotions, Index of Greenness, and facial expressions were measured with pre- and post- self-reporting methods, using The Forest Welfare Program Effectiveness Survey which was developed by the Korea Forest Welfare Institute.
- **Analysis**(IBM SPSS 27.0)
  - Efficacy verification through pre- and post-analysis for each experimental group and control group (response sample t-test).
  - Effectiveness Analysis of the improved program (Program B) (Experimental group and control group homogeneity verification, independent sample t test-one-sided).

## III. Results

- Frequency analysis
- Analyzed excluding missing values and gender ratio analysis
- Analysis results of forest healing effects by program(Control)
  - As a result of the pre-post comparison of the control group, the public officials had an effect improvement of 0.73 points in positive emotion.
  - In youths, there was 2.21 points improvement in the rust rate.
  - In addition, it is statistically significant at a 1% significance level in all items.
- Analysis results of forest healing effects by program(Experimental)
  - Experimental group had forest healing effects.
  - As a result of the pre-post comparison of the experimental group, the public officials had an effect improvement of 1.11 points in positive emotion.
  - In youths, there was 2.94 points improvement in the rust rate.
  - It is statistically significant at a 1% significance level in all items.

Table 1. Valid sample survey

Subject	Valid sample		Survey		Analysis	
	2018	2019	2018	2019	2018	2019
Public officials	30	30	30	30	30	30
Youths	37	49	29	49	29	49

Table 2. Characteristics of participants

Variable	Categories	Control group(2018)		Experimental group(2019)	
		Frequency	Percent(%)	Frequency	Percent(%)
Public officials	Male	16	53.3	13	43.3
	Female	14	46.7	17	56.7
Youths	Male	10	34.5	20	40.8
	Female	19	65.5	29	59.2

- Analysis results of forest healing effects by program(Experimental)
  - Experimental group had forest healing effects.
  - As a result of the pre-post comparison of the experimental group, the public officials had an effect improvement of 1.11 points in positive emotion.
  - In youths, there was 2.94 points improvement in the rust rate.
  - It is statistically significant at a 1% significance level in all items.

Table 3. The effects of program A for control group in 2018

Item(subjects)	Control (2018) N	Pre		Post		Post(M)-Pre(M)		t	p	df
		M	SD	M	SD	M	SD			
Positive Emotion(Public Officials)	30	2.78	0.58	3.51	0.65	0.73	0.72	5.522	0.000**	29
Index of Greenness(Youths)	29	2.62	0.82	4.83	1.44	2.21	1.24	9.617	0.000**	28

\*\*p<.01

Table 4. The effects of program B for experimental group in 2019

Item(subjects)	Experimental (2019) N	Pre		Post		Post(M)-Pre(M)		t	p	df
		M	SD	M	SD	M	SD			
Positive Emotion(Public Officials)	30	2.89	0.59	4.00	0.74	1.11	0.74	8.214	0.000**	29
Index of Greenness(Youths)	49	2.20	0.87	5.14	0.94	2.94	1.22	16.936	0.000**	48

\*\*p<.01

- Effectiveness analysis results of improved program utilizing healing resources
  - There are improvements in forest healing effects in all.
  - The 2019 program(Public officials) **improved positive emotions by 0.38 points(p<.05).**
  - The 2019 program(Youths) **improved Index of Greenness by 0.79 points(p<.01).**

Table 5. The comparison of forest healing effect between program A and program B

Items	Program A Control (2018)		Program B Experimental (2019)		homogeneity of variance test		one side t-test		
	M	SD	M	SD	F	p	EXP(M)-CTR(M)	t	p
Positive Emotion(Public Officials)	0.73	0.72	1.11	0.74	0.173	0.679	0.38	-2.010	0.025*
Index of Greenness(Youths)	2.21	1.24	2.94	1.22	0.784	0.379	0.79	2.555	0.006**

\*p<.05, \*\*p<.01

## IV. Conclusion

- Since the analysis results of forest healing effects by program were found to have significant effects in all items, it is consistent with prior studies which showed that it has positive effects on mental health, stress relief, and psychology after participating in the forest therapy program.<sup>2)</sup>
- The program utilizing forest healing resource (Program B), in which the experimental group participated, was improved by focusing on serotonin and the index of greenness for public officials and youths.
- As a result, the forest healing effect in items increased, and, positive emotions and index of greenness were verified for statistical significance.
- Most of the studies to verify the effectiveness of forest healing are comparative cases of differences before and after according to the subject.
- However, **this study is meaningful in that it revealed the effect of forest healing through a forest therapy program utilizing healing resources.**
- The utilization of appropriate forest healing resources by target contributed to the improvement of forest healing effects.
- Therefore, **if forest healing resources are utilized to develop and improve programs, it is expected that the forest healing effect will be further enhanced.**

## V. Reference

- 1) Kim, J.Y., C.S. Shin, P.S. Yeoun, J.Y. Yi, M.R. Kim, J.K. Kim. and Y.H. Yoo(2013). Forest healing program impact on the mental health recovery of elementary school students. J. Korean Inst. For. Recreat. 17(4):69-81. <https://doi.org/10.34272/forest.2013.17.4.008>
- 2) Lee. B.K. and H.H. Lee. 2013. Effects of Occupational and Social Stresses after Forest Therapy. Journal of Naturopathy. 2(2): 108-114.

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