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The Effects of a Stay-type Hot Spring Trekking Health Tour on the Age-specific Positive Affect and Negative Affect Schedule

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Abstract

The purpose of our study was to analyze the changes in positive and negative emotions when implementing a residential health tourism program that combined forest and hot spring environments for young and middle-aged people. To achieve the purpose of this study, we designed a health tourism program utilizing Yeonginsan National Recreation Forest and hot spring facilities located in Asan-si, Chungcheongnam-do. The subjects of the study were 10 young and middle-aged people (20s-30s) and 22 middle-aged people (40s-50s). The forest environment health tourism program included a 1-hour walk in Yeonginsan National Recreation Forest, and the hot spring environment health tourism program included a 1-hour hot spring bath in Asan Hot Springs. Afterwards, they stayed in a glamping facility exposed to the forest environment and did camping activities. In order to investigate the changes in positive and negative emotions, the PANAS (positive affect and negative affect schedule) questionnaire was conducted before and after the application of the health tourism program. As a result, positive emotions increased by only 2-30 seconds in all groups, and negative emotions decreased. In summary, forest and hot spring health tourism programs appear to be sufficiently helpful in relieving stress and emotional stability.

Keywords: *Health tourism, Forest, Hot Spring, PANAS*

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1. Introduction

Due to the highly developed economic growth of the 21st century, the standard of living and aging have been promoted worldwide, and with the emergence of new lifestyles that pursue quality of life, interest in health and well-being has increased [1].

In addition, health tourism is attracting attention to solve the adverse effects of high stress situations and fa tigue caused by many people living in urban areas [2]. Health tourism, one of the rapidly growing tourism industries, is a journey for the purpose of health promotion or healing, and consists of hot springs and spas, beautiful natural scenery, hotels, and resorts in areas where individuals do not reside [3], and is known to have effects such as relaxation and stress relief [4].

Healing activities using forest resources include taking a walk in the forest, appreciating the scenery using the five senses (sight, hearing, touch, smell, and taste), experiencing the forest, and meditating [5]. It has been reported to have physiological effects such as increasing parasympathetic nerve activity, decreasing sympathetic nerve activity, decreasing cortisol concentration, and decreasing blood pressure and pulse, and psychological effects such as improving depression, anxiety, and stress [6].

In addition, the spa program using warm water or hot springs is composed of bathing treatment and physical activities at various water temperatures [7], and it has been reported that activities using characteristics of water improve pain, fatigue, and depression, resulting in relaxation of the body and reduction of blood pressure and heart rate [8].

Meanwhile, the positive effects of health promotion programs may vary depending on the individual's age, and unlike young adults who have more personal time, middle-aged adults are known to have less activity and greater mental stress due to work-related (career advancement) or family-related obligations (child rearing), as well as biological changes and lifestyle habits (sedentary lifestyle and eating habits) that come with aging [9].

Therefore, this study aimed to analyze the differences in program effects by examining the emotional changes that occur when applying a health tourism program, which is attracting attention as a new healing activity, by dividing it into age groups.

2. Experiment Materials and Methods

2.1 Subject

The subjects of this study were 32 adults in their 20s to 50s living in Chungcheongnam-do. Subjects were divided into 2-30s (young-aged adults) and 4-50s (middle-aged adults). Before the experiment, the researcher explained the purpose and procedure in detail and informed them of the expected benefits and inherent risks. All subjects consented based on their own will and signed the consent form for participation in the study. The characteristics of the research subjects are shown in <Table 1>.

Table 1. Characteristics of subjects

Groups	Age(yr)	Height(cm)	Weight(kg)	Muscle mass(kg)	Body fat(%)
2-30s(n=10)	26.10±3.07	166.58±6.65	67.46±15.57	26.45±7.01	28.71±6.61

4-50s(n=22)	46.05±3.21	167.26±8.57	65.88±18.17	27.63±8.32	25.96±5.15

2.2 Health Tourism Program

Among the health tourism programs, the forest program took a walk for about an hour using the Yeonginsan National Recreational Forest in Asan City, Chungcheongnam-do, and took a hot spring bath for one hour using facilities in Asan Hot Spring. After that, camping was conducted using an outdoor glamping field. Health tourism programs including forest and hot spring environments are as shown in <Table 2>.

Table 2. Health Tourism Program

Time	Day 1	Day 2
09:00-10:00		Breakfast
10:00-12:00		Survey & Homecoming
13:00-14:00	Orientation & Survey	
14:00-16:00	Forest walk	
16:00-18:00	Hot spring bath	
18:00-20:00	Dinner & Glamping	

2.3 Positive and Negative Affect Schedule (PANAS)

PANAS is a questionnaire that asks about the subject's current state based on 20 items listing adjectives related to emotions [10]. The answers for each item are on a scale of 1 to 5, and the scores for positive and negative items are added together to evaluate them. Positive emotions are related to pleasant emotions, passion, and alertness, while negative emotions are related to unpleasant emotions, distress, and annoyance. This questionnaire shows excellent reliability with Cronbach's alpha coefficients ranging from 0.86 to 0.90 for the positive emotion scale and 0.84 to 0.87 for the negative emotion scale [11].

2.4 Statistical Analysis

In this study, IBM SPSS statistics (ver 22.0) statistical program was used to calculate the mean and standard deviation of the variables. Mixed design measures two-way ANOVA according to age and period were analyzed by Bonferroni method, and the significance level was set at α=.05.

3. Result

3.1 Change of Positive emotions

There was no significant difference in positive emotions by age. There was a significant difference in positive emotions over the period, and it significantly increased in the 2-30s group. There was no interaction effect by age and period. The changes in positive emotions by age during the Health Tourism Program are shown in <Table 3>.

Table 3. Changes of Positive Emotion according to Health Tourism Program

Groups	Pre	Post		F	*P*
2-30s	24.20±3.58	27.90±8.03†	Age(A)	.544	.467
4-50s	27.23±6.68	28.41±7.93	Period(P)	4.232	.048
			(A) X (P)	1.126	.297

M±SD, † Significant differences between period

3.2 Change of Negative emotions

There was no significant difference in negative emotions by age. There was a significant difference in negative emotions by period, and it significantly increased in the 2-30s and 4-50s group. There was no interaction effect by age and period. The changes in positive emotions by age during the Health Tourism Program are shown in <Table 4>, <Figure 1>.

Table 4. Changes of Negative Emotion according to Health Tourism Program

Groups	Pre	Post		F	*P*
2-30s	18.20±7.36	13.40±4.17†	Age(A)	.007	.935
4-50s	13.40±4.17	12.45±3.76†	Period(P)	20.853	.000
			(A) X (P)	.701	.409

M±SD, † Significant differences between period

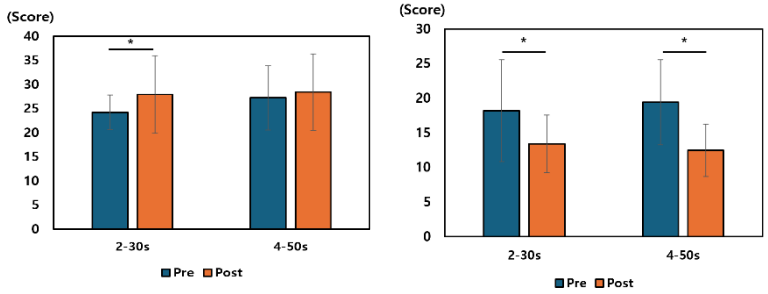

Figure 1. Changes of positive emotion (left) and Negative Emotion (right)

4. Discussion

This study investigated the changes in psychological emotions by age when applying for the health tourism program that has recently been gaining attention. To find out, subjects were recruited by dividing them into those in their 20s and 30s and those in their 40s and 50s, and all subjects were subjected to forest and hot spring health tourism for 1 night and 2 days. The PANAS was used as a verification tool for changes in psychological emotions. As a result, there was no difference in psychological emotional changes by age, but positive emotions significantly increased (20s and 30s) or showed a tendency to increase (40s and 50s) after applying health tourism compared to before, while negative emotions significantly decreased in both groups.

PANAS (Positive Affect Negative Affect Scale; PANAS) is a scale developed by Watson et al [11] and is the most widely used emotional scale worldwide, with the highest reliability and validity. The positive effect of PANAS reflects emotions of enthusiasm, activity, and agility, and high positive affect means emotional states such as high energy, concentration, and joy, while low positive affect is characterized by sadness and lethargy. On the other hand, negative effects show subjective pain and unpleasant emotions including aversive emotional states including anger, contempt, disgust, guilt, fear, and nervousness. Low negative affect indicates emotional states such as calm and tranquility.

In this study, positive emotion showed a significant increase as a result of applying health tourism. Forest healing is known to have physical effects such as strengthening immunity and reducing blood pressure, as well as emotional stabilizing effects such as relieving stress, increasing positive emotions, and reducing negative emotions [12], which is consistent with the results of this study. In addition, White et al [13] reported that the group that exposed adults to an alcohol environment for 120 minutes significantly increased their level of well-being compared to the group that did not. This study included a 120-minute forest program in the health tourism program and showed similar results to previous studies.

It is known that hot spring bathing activates the hypothalamic-pituitary-adrenal (HPA) axis in response to various stressors including hyperthermia, stimulating the release of β-endorphin [14], adrenocorticotropic hormone (ACTH) and cortisol and catecholamines due to sympathetic nervous system activation [15]. Simple hot water therapy has also been reported to activate the HPA axis and sympathetic nervous system.

Based on the results of these previous studies, it is thought that the health tourism program that combined the forest program and hot spring program implemented in this study increased positive emotions and decreased negative emotions in response to stress factors that could have psychological and emotional effects on the research subjects who participated.

5. Conclusion

In conclusion, this study showed that after applying health tourism for 1 night and 2 days, positive emotions increased, and negative emotions decreased in both the 20s and 30s and the 40s and 50s groups compared to before and after the application. Therefore, it is thought that the forest and hot spring health tourism program will have a positive effect as a healing program that has recently been in the spotlight, such as stress relief and emotional stability. Although one evaluation tool cannot show all emotional aspects of a human, the results of this study seem to show that the forest and hot spring health tourism program can be sufficiently helpful for stress and emotional stability. It is thought that follow-up studies should develop various programs that help with human stress and emotional stability, and deal with physiological verification tools in addition to questionnaires such as the evaluation tool of this study.

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