

The Influence of Forest Experience on Alcoholics' Depression Levels

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Abstract : Restorative effect of forest settings is an emerging issue in the field of forestry. It is also the central question facing those currently engaged in the psychotherapeutic interventions is which treatments work. This study was performed to investigate the efficacy of forest experience on alcoholics' depression. Among 531 participants in forest healing camps, 47 alcoholics who participated all three sessions of the camps were selected for this study. Using pre-test and post-test group design with Beck Depression Inventory (BDI), mean changes in alcoholics' depression by completion of the camp was measured. The result of this study indicated that the 3-session of forest camp played significant role in reducing participants depression levels (i.e., positive changes in depression scores).

Key words : Alcoholics, healing, depression, pre-test and post-test design, psychological efficacy

Introduction

Previous research have been indicated that alcoholism is associated with the development of depressive symptom (Aneshensel and Huba, 1983; Merikangas, *et al.*, 1985; Schuckit, 1986). Birnbaum, *et al.* (1983) argued that extended period of drinking are likely to be associated with clinical pictures that resemble major depressive episodes. Schuckit (1986) also found that feelings of depression were reported in over 80% of severe alcohol dependent subjects, with periods of severe depressions lasting 2 weeks or more and qualifying for a diagnosis of a major depressive disorder occurring in about a third of all alcohol-abusing patients.

Although the prevalent of depression in alcoholics has been reported, the severity of the depression and the relationship of the depression to other facets of the alcoholics' life still remain equivocal (Steer and McElroy, 1983). It has been observed that alcohol is sometimes used as a self-medication for alleviating depression (Chafetz, 1976), and it has been described depression as precipitated by alcoholism (Button, 1956).

The power of natural environment such as forest to influence human mental condition is well established. Kaplan (1995) proposed in his attention restoration theory that exposure to nature reduces mental fatigue. He noted that most of time in modern society draws on the

capacity to deliberately direct attention or pay attention. The information and high technical based demands of everyday life are resulting in mental fatigue. In contrast, natural environments and stimuli such as forested landscapes seem to effortlessly engaged our attention, and allowing us to attend without paying attention. For this reason, Kaplan suggested, contact with nature provides a respite from deliberately directing one's attention.

There have been growing number of empirical studies on the attentionally restorative effects of natural settings including wilderness areas (Shin, 1993), community park (Shin, *et al.*, 2005), and views of nature through windows (Ovitt, 1996; Shin, *in press*). Furthermore, the previous studies have demonstrated links between contact with nature and more effective attentional functioning in a variety of populations such as cancer patients, participants in a wilderness program, campers, and AIDS care-givers).

There are a few studies conducted in this area in Korea. Shin and Oh (1996) investigated the effect of forest program on participants depression. Shin *et al.* (2005), using large samples of urban forest users, also examined the urban forest park use and psychological outcomes. They concluded that urban forest parks provide a wide range of experience outcome such as coping with stress and mental fatigue.

If contact with nature is attentionally restorative, how then might attentional restorative mitigate alcoholics' depression? The present study was designed to investigate the influence of forest experience on alcoholics'

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depression levels. Our interest is in the degree of changes in self-reported depression after completion of three forest healing camps for alcoholics.

Method

1. Participants

Participants in the forest healing camp who had completed the 3-session follow-up were eligible to participate in this study. Total number of alcoholic participants for all sessions of healing camps were 531. Among 531, 47 alcoholics were participated all three sessions. Therefore, the sample size for this study was 47 participants. The demographic characteristics of the 47 participants were as follows: age ($M=45.26$, $SD=7.76$ years); sex (43 males, 4 females); education (3 elementary graduated, 6 middle school graduated, 25 high school graduated, 11 college or university graduated); and marital status (23 single, 11 divorced, 15 married).

2. Instrument

The Beck Depression Inventory (BDI) was employed to determine participants' depression levels, as a major dependent research variable in this study. The Beck Depression Inventory (BDI) is a self-report measure of 21 items in a multiple choice format. Score can range from 0 (no depression) to 63 (high depression). This instrument has been used extensively in clinical research and demonstrates construct validity and reliability. Freedman and Enright (1996) reported a reliability of 0.84. The Cronbach's alpha for pretest scores in this study ($N=30$) was 0.89. The BDI has been employed in many fields in Korea. For example, Kim (1987) and Park (1998) examined the relationship between stress and depression. Lee and Song (1991) also investigated validity and reliability of the Korean BDI. Most of the previous studies indicated that the Korean BDI was a valuable research and clinical tool to measure depression levels.

3. Procedure

To investigate the efficacy of forest experience on alcoholics' depression, 3-session forest healing camps were designed and performed by Korea Forest Foundation during the year of 2006. Each session's purpose, date performed, activities, and places performed were summarized in the Table 1. As it can be seen from the Table 1, each session of the camp was designed to achieve goal.

A set of questionnaires including personal-profile, perception about forest healing camp (motivation to participate, expectation, previous experiences with forest, etc.) and BDI sections was administered and completed to collect base-line data during the orientation at each camp location prior to the first camp program commenced. For comparative data collection, the same type of questionnaire was distributed to each participant to complete.

Results

Table 2 shows basic demographic data on the alcoholic participants.

Scaled data were collected at pre and post-programs (by completion all 3 sessions) on ratings of depression with Beck Depression Inventory (BDI). The change from pre-test to post-test is presented in scale score terms and the mean differences were tested for statistical significance using a two-tailed t test (Table 3).

As it can be seen from the Table 3, the mean pre-test scores (BDI), before first session of the camp, was 15.35. By completion of all 3 sessions, the mean post-test score (BDI) was 5.52. The mean difference between the two was 9.83. According to the t-value, this difference was statistically significant ($p \leq 0.001$). Therefore, three sessions of forest camp experience influenced on decreasing the alcoholics' depression levels.

As described in the procedure (see Table 1), each session of the forest healing camp had different goal. Therefore, efficacy of each session on the change in

Table 1. Summary of Forest Healing Camps held in 2006.

Session	Period	Achieving Goal	Activities	Places of Camp held (Recreational Forests)	Number of participants
1st	3 days	Interaction with forest/nature	feeling with and in forest, nature-game, forest interpretation, etc.	Chongtea-san Oseo-san Unmoon-san	201
2nd	3 days	Challenge	mountain climbing, tracking, etc.	Chongtea-san Oseo-san Unmoon-san	171
3rd	3 days	Self-introspection	meditation in forest, counselling, etc.	Chongtea-san Oseo-san Unmoon-san	531

Table 2. Background Data on Forest Healing Camp Participants.

Variables	Classification	Frequency	% ^a
Gender	Male	43	91.5
	Female	4	8.5
Age	Mean (Years)	45.26	
	20s	1	2.1
	30s	9	19.1
	40s	23	48.9
	50s	12	25.5
	60s or more	2	4.3
Education	Elementary Graduated	3	6.7
	Middle School Graduated	6	13.3
	High School Graduated	25	55.6
	College or University	11	24.4
Marriage Status	Unmarried	23	50.0
	Married	15	32.6
	Divorced	11	17.4
Previous Forest Experience (per year)	Never	19	40.4
	1-2 days	7	14.9
	3-4 days	6	12.8
	5 days or more	15	31.9
Depression Levels	No Depression	15	33.3
	Slightly Depression	11	24.4
	Depression	11	24.4
	Severe Depression	8	17.9

^aThe number of respondents in each category may not add up to 47 because of missing data

alcoholics' depression levels was tested. Table 4 summarized the results of t-tests on depression differences between pre and post means by each session.

As it can be seen from the Table 4, all sessions, excluding 2nd session, influenced significantly on participants' decreasing depression levels at $p \leq 0.001$. Therefore, 'Interaction with forest/nature' and 'Self-introspection' related activities/experiences were most important and efficient attributes in depression change.

To determine whether alcoholics' personal variables influenced on their mean depression score differences

Table 5. Differences on Depression Changes (BDI) between pre and post tests by Some Personal Variables.

Variables	D.F.	F-value	Sig.
Age	3	3.07	0.041
Education	3	0.37	0.775
Marriage Status	2	0.65	0.529
Depression Levels	3	14.88	0.001

between pre and post-programs (by completion all 3 sessions), a series of F-tests were performed. Table 5 summarized the results of the tests.

The Table 5 indicated that due to participants' age and initial depression levels, their levels of depression changes were significantly different. Participants in their 40s had greatest change in depression scores (BDI= 11.09) followed by 30s (BDI=6.83), and 50s (BDI= 3.11). Regarding to the initial depression levels of the participants, it was shown negative correlation between severeness of depression and the significance of change. Alcoholics with severer depression level at initial stage (i.e., prior to 1st forest healing camp) tended to decrease more greatly in their depression levels by completion the three sessions of the forest healing camps.

Discussions

The results of this study indicated that participation in the forest healing camp had resulted in decreased depression levels in alcoholics. Consistent with previous research on the positive influence of forest on the improve mood and reduce stress (Ulrich, *et al.*, 1991), produce positive feelings (Ulrich, 1979), boost feelings of energy (Hull, 1992), positive psychological effects (Pitt and Zube, 1987), and increase healing (Ulrich, *et al.*, 1991), this study found that depressed alcoholics gained improvement in their depression after forest experience (i.e., forest healing camp).

Forest stimuli maybe an answer to 'why forest influence on the participants' depression?' Forest environment

Table 3. Mean Differences on Depression (BDI) between pre and post tests.

	Means (S.D.) ^a	Mean Difference	N	t-value	Sig.
Pre-test	15.35 (11.16)	-9.83	47	-6.27	0.001
Post-test	5.52 (6.87)				

^aPossible score range: 0 to 63

Table 4. Mean Differences on Depression (BDI) between pre and post tests by Camp Sessions.

Session	Pre-Means (S.D.)	Pre-Means (S.D.)	Mean Difference	N	t-value	Sig.
1st	15.35(11.16)	10.25(10.57)	5.10	40	4.83	0.001
2nd	12.16(11.70)	10.64(12.71)	1.51	37	1.50	0.140
3rd	9.74(10.85)	5.52(6.87)	4.21	42	3.46	0.001

has provide different elements while most of artificial and man-made constructions exist in our society. Forest settings clearly predominated among favorite places. Moreover, restorative outcomes characterized forest places in particular. The feelings most frequently associated with favorite place would contribute to psychological well-beings, such as relaxation, calmness, and comfortableness in the first place, with happiness, enjoyment, and excitement as the next most frequently mentioned. Forgetting worries and reflecting on personal matters suggest that hypothetically deeper levels of restorative experience (i.e., reducing depression) emerge in forest environment.

The findings in this study provide strong evidence for a potential effect of forest that has been largely unexplored, reducing depression. Previous studies on the effects of forest/nature has focused on its effects on mood, recovery from stress, and attention (Hartig et. al., 1991; Ulrich *et al.*, 1991), and very few previous study have hinted at a potential effect of forest on depression (for example, Shin and Oh, 1996). Likewise this study demonstrates a link between forest and reduced depression in an experimental design and provides clear support for the proposed mechanism of attentional restoration.

Further studies should include participants in different types of forest experiences at different locations; a wider inventory of disposition items; and variables that define different aspects and components of the forest experience benefits, including descriptive information on the benefits.

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