

# Effectiveness of the Cognitive Capacity Enhancement Program for Alcohol Dependence Inpatients

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## Abstract

**Objectives:** Alcoholism is a severe mental illness which is characterized high relapse rate and complication. This study was conducted to investigate effectiveness of the cognitive capacity enhancement program for alcoholism inpatients. **Methods/Statistical Analysis:** This study used quasi-experimental study design. Eligible participants were hospitalized patients diagnosed as alcohol dependence. A total of 60 participants were assigned to a 10-session Cognitive Capacity Enhancement Program (n=30) or control group (n=30). Final participant were 50. The outcome variables were insight, abstinence self-efficacy, and recovery. We used t-test and ANCOVA to test the effectiveness the program. **Findings:** There were no statistically differences in demographic variables and outcome variables except recovery between the two groups. The findings showed that the program was effective in increasing insight ( $t=-2.79$ ,  $p=.006$ ). But there were no significant difference between the two groups on abstinence self-efficacy and recovery. As a conclusion, the 'Cognitive Capacity Enhancement Program' was effective in improving insight for the alcoholics. **Application:** This study contributes to provide framework in developing the intervention for promoting the recovery among the alcoholism patient.

**Keywords:** Alcoholics, Cognitive Capacity Enhancement Program, Recovery, Self-Efficacy

## 1. Introduction

Alcoholism is characterized by high prevalence and relapse rate, and severe complications. It was reported that 85 percent of alcohol dependence inpatients in Korea have poor insight<sup>1</sup>. Poor insight of the alcoholics causes noncompliance and relapse<sup>2</sup>. Low self-efficacy about abstinence is also pointed out as a major cause of that alcoholic patients give up their abstinence. The abstinence self-efficacy refers to the confidence or belief in the ability to efficiently respond to high-risk situations instigating drinking. It is also an important cognitive factor in alcoholism treatment<sup>3</sup>. In<sup>4</sup> also stressed alcohol

abstinence self-efficacy reduces the likelihood of recurrence. The recovery of alcoholics does not simply mean to stop drinking but it means ultimately the overall changes in their beliefs and values on life and personality internally. It was emphasized that recovery should be understood in the long-term and comprehensive dimension<sup>5</sup>.

As for the therapeutic approach, it has been suggested that the treatment for the alcoholics it should focus on life-long care and recurrence prevention rather than clinical cure<sup>6</sup>. The psychosocial programs such as motivational enhancement, cognitive behavioral therapy, and AA's 12 steps have been developed for the recovery of the alcoholics. These programs have been used in individual

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interviews or group therapy in the clinical field. Of them, the 12-step therapy is recognized as the popular long-term treatments program can be applied in AA (Alcoholics Anonymous)<sup>7</sup>. In South Korea, 12-step therapy have been developed to be proper to its national culture and situation and applied in various clinical fields. However, the emphasis on spiritual element in AA gives rise to some difficulty in clinical application and causes the limitation to the accessibility of alcoholics. For this reason, despite its known effectiveness, the 12-step therapy has not been actively approached clinically when compared with the cognitive behavioral therapy for alcoholics or motivational enhancement<sup>8</sup>. Now it is noted that the program should not aim just at abstinence from alcohol drinking but aim to recognize their addiction problems, pursue effective coping behavior, and change their life style<sup>5</sup>.

So, in the current study we developed the Cognitive Capacity Enhancement Program that leads the alcoholics to recognize the severity of the disease and modify the distorted cognition, finally discover themselves. And we investigated the effectiveness of the program (on insight, abstinence self-efficacy, and recovery) by the quantitative and qualitative research methods. This paper is a part of the first author's doctoral dissertation and suggested only quantitative research findings.

## 2. Materials and Methods

### 2.1 Design

This study used non-equivalent control group, pre-posttest design.

### 2.2 Participants and Procedures

Eligible participants were hospitalized patients diagnosed as alcohol dependence in K Alcohol Treatment Hospital in Kyounggi area of South Korea. First, we explained the study purpose and procedures to the director of the hospital. The inclusion criteria for the study were those who passed minimum 1 week after detoxification among the patient diagnosed as alcohol dependence. Those who have severe psychotic symptoms or problems related to other substance were excluded.

The G power calculations suggested that 50 subjects would be sufficient based on a power calculation of 80% and a significance level of 5%, effect size of 0.4. So, we selected 60 participants with considering drop-out rate. Of the 60 participants who were enrolled in the study,

10 were excluded from the analysis (5 in the two groups respectively) because they discharged before posttest. Hence, the experimental and control groups were comprised of 25 subjects, respectively, at posttest.

The program was provided by one of the researcher twice per week. One group comprised 4-5 participants. Data collection was conducted by co-researcher. To avoid the effect of treatment diffusion, data collection of the control group was conducted first. And then, pretest of the experimental group was implemented and post test was conducted after program. The study progress is shown in figure 1.

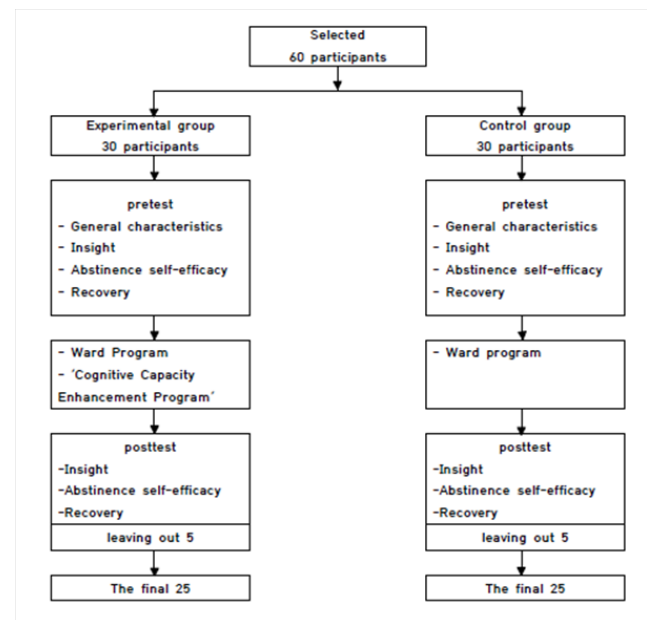


Figure 1. Study progress.

### 2.3 Measures

Outcome variables were insight, abstinence self-efficacy, and recovery. Insight was measured by HAIS (Hanil Alcohol Insight Scale)<sup>9</sup>. HAIS is consisted of 20 items (3 Likert scale) and scores are ranged from 20 to -20. High scores indicate higher level of insight. This scale classifies the insight level based on the scores. The scores from -20 to +3 indicate negative insight into disease (poor); from 4 to 15, partial formation of insight into disease (fair); from 16 to 20, formation of insight into disease (good) herein. The internal consistency reliability for the scale was .84 ~ .89<sup>9</sup>. In the current study, Cronbach's Alpha coefficient was .89.

Abstinence self-efficacy by<sup>10</sup> was used. This scale is consisted of 20 items (4 Likert scale) and scores are

ranged from 0 to 80. Higher scores indicate higher abstinence self-efficacy. Kim reported the internal consistency reliability of .91. In the current study, Cronbach's Alpha coefficient was .93.

Recovery was measured by Recovery Scale<sup>5</sup>. This scale is consisted of 23 items (5 Likert scale). The higher scores indicate higher degree of recovery. In the study by Jeong, the internal consistency reliability was reported as .72. In the current study, Cronbach's Alpha coefficient was .74.

## 2.4 Cognitive Capacity Enhancement Program

The program was developed based on Cognitive-Behavioral model by<sup>4</sup>. 'Cognitive Capacity Enhancement Program (CCEP)' is consisted of 10 sessions. Each session has major topic and contents. Major topics of CCEP as follows; Self-awareness, Preparation of change, Developing coping strategies, Changing oneself, Enhancement self-efficacy, & Practice & feedback. The program was provided by one of the researcher who has worked many years in the alcoholic treatment center and is an expert in the program for the alcoholics. Each session took 1 hour. The program was as shown in table 1.

Session 1 of the program was introductory phase, in which the leader provided a general explanation of the program. The topic of session 1 & 2 was self-awareness. Participants were guided to recognize their drinking behavior as a problem. In session 2, participants were asked to identify their problem in environmental context and recognize that their drinking behavior have affected others including family, friends. Consequently, participants were leaded to identify their unhealthy characteristics that contribute to perpetuate their problems. The topics of session 3 & 4 were preparation of change. In session 3, the participants were guided to identify behavior and thinking related to recovery and conduct self-observation and self-evaluation of positive and negative responses related to recovery. In Session 4, participants were asked to disclose themselves such as their problems, weakness, strength, etc. The topics of session 5~8 were change oneself. In session 5, participants were guided to explore alternative coping strategies and develop healthy coping strategies that can be used in daily life. In session 6 and 7, participants were asked to know themselves seen by others in social context. In addition to this, participants began to confront their own problem rather than problems existed in the others or environment. Session 8 focused on self-monitoring of participants. Participants

**Table 1.** 'Cognitive Capacity Enhancement Program'

Session	Major topics	Session Contents
1	Self-awareness	<ul style="list-style-type: none"> <li>• Providing a general explanation of the program</li> <li>• Recognizing one's problem</li> </ul>
2		<ul style="list-style-type: none"> <li>• Identifying one's problem in environment</li> <li>• Identifying one's unhealthy characteristics</li> </ul>
3	Preparation of change	<ul style="list-style-type: none"> <li>• Identifying behavior and thinking related to recovery</li> <li>• Self-observation &amp; self-evaluation</li> </ul>
4		<ul style="list-style-type: none"> <li>• Disclosure oneself in terms of one's problem, weakness, strength. Etc.</li> </ul>
5	Developing coping strategies	<ul style="list-style-type: none"> <li>• Exploring alternative coping strategies</li> <li>• Identifying healthy coping strategies</li> </ul>
6	Changing oneself	<ul style="list-style-type: none"> <li>• Knowing oneself recognized by others</li> </ul>
7		<ul style="list-style-type: none"> <li>• Confronting one's problem</li> </ul>
8		<ul style="list-style-type: none"> <li>• Self-monitoring in daily life</li> </ul>
9	Enhancement self-efficacy	<ul style="list-style-type: none"> <li>• Assuring importance of healthy life</li> <li>• Being motivated to sober life</li> </ul>
10	Practice & feedback	<ul style="list-style-type: none"> <li>• Practice change in daily life</li> <li>• Sharing one's experiences of practice</li> <li>• Closing</li> </ul>

were guided to do monitoring themselves in their daily life. The topic of session 9 was enhancement of self-efficacy related to abstinence. Session 9 emphasized this self-efficacy means capacity for self-control. Participants also were guided to assure why they live healthy life and be motivated to sober life. The topic of the final session (session 10) was practice and feedback. Participants were asked to practice change their life. And they had a time to share their experience related to practice change in daily life and give & take feedback each other.

## 2.5 Data Analysis

We analyzed by using SPSS/Win version 18.0. To analyze the homogeneity of the demographics, variables related to disease, and outcome variables at pretest between experimental and control groups, we used the chi square test and t-test. We used t-test for insight and abstinence self-efficacy and ANCOVA for recovery to analyze the effectiveness of the program.

## 2.6 Ethical Consideration

We explained the study to the director of a hospital and were accepted to conduct study. Then, we explained the purpose and procedures of the study to the participants; we obtained the written informed consent from them. Access to raw data was rigorously limited to the researchers, and all data were recorded in an unidentifiable manner to protect the identity of the participants. We also explained that they could discontinue their participation at any time, for any reason, without penalty or negative consequences.

## 3. Findings

### 3.1 Comparison of Participants' Characteristics between the Experimental and Control Groups

There were no significant differences between the two groups in the demographic characteristics in terms of gender, age, educational level, marriage status, religion, and job status. There were also no significant differences between the two groups in the characteristics related to alcoholism in terms of alcohol drinking age, admission frequency, experiences of abstinence, period of abstinence, and relapse periods as shown in table 2.

### 3.2 Homogeneity between the Two Groups in Outcome Variables

There were no significant differences between the two groups in the insight ( $t=0.682$ ,  $p=.499$ ) and abstinence ( $t=0.230$ ,  $p=.819$ ). However, there was significant differences between the two groups in the recovery ( $t=-2.691$ ,  $p=.010$ ) as shown in table 3.

### 3.3 Effectiveness of 'Cognitive Capacity Enhancement Program'

There was significant difference in scores of insight at posttest between experimental ( $13.72\pm 4.13$ ) and control groups ( $11.48\pm 6.37$ ) ( $t=-2.79$ ,  $p=.006$ ). However, there were no significant differences in abstinence self-efficacy ( $t=-0.71$ ,  $p=.476$ ) and recovery ( $F=0.164$ ,  $p=.68$ ) between two groups as shown in table 4.

## 4. Discussion

This study investigated the effectiveness of 'Cognitive Capacity Enhancement Program' for the alcohol dependence patients. It was found 'Cognitive Capacity Enhancement Program' was effective in increasing insight. This finding is consistent with previous findings<sup>11</sup>. The components of self-awareness, self-observation, and self-disclosure could have contributed to improve the insight of the alcoholic patients. In the program, the participants were guided to recognize their drinking behavior as a problem and that their drinking behavior have affected others including family and friends. One of the problems that the alcohol patients have and interrupt the treatment process is low insight of the alcohol patients<sup>12</sup>. Therefore, this component of program in the study can provide the direction in developing the intervention aimed at enhancing insight of the alcoholics.

Contrary to our expectation, the 'Cognitive Capacity Enhancement Program' had no significant effectiveness in abstinence self-efficacy and recovery. This finding is not consistent with the previous study<sup>12</sup>. And this finding is similar to the previous studies<sup>13,14</sup>. Furthermore, in the experimental group, after this program, abstinence self-efficacy was decreased a little. Some possible explanations for this finding can be suggested. In<sup>15</sup> pointed that when the alcoholics face his or her own problem, they may experience the conflict in their self-efficacy and at the same time confront their real situation. So, these experiences such as confrontation of their real situation

may lower abstinence self-efficacy while the participants increased insight through the program. In addition, the program was not sufficient to improve the recovery degree. So, future research that can correct such flaw is needed.

Although the current study suggests the direction for developing the program that can enhance insight for the alcoholic patient, there is some limitation in the study.

First, the study was conducted in one hospital, so, there can be some problem in generalization to the other participants in other hospital. Hence, future study needs to include larger participants in various hospitals. Second, the study did not apply blind procedure, so, this study did not control halo effect. Controlling such factors that can affect the effect of intervention in future research is needed.

**Table 2.** Comparison of participants' characteristics between the experimental and control groups

(N=50)

Variables	Division	Exp.	Cont.	X <sup>2</sup>	p
		n(%)	n(%)		
Gender	Male	16(64.0)	21(84.0)	0.023	.107
	Female	9(36.0)	4(16.0)		
Age(years)	<45 years	9(36.0)	7(28.0)	0.691	.369
	46~50	7(28.0)	8(32.0)		
	51~65	9(36.0)	10(40.0)		
Education level	Middle school	5(20.0)	11(44.0)	0.021	.144
	High school graduate	15(60.0)	12(48.0)		
	University and graduation	5(20.0)	2(8.0)		
Marriage status	Married	2(8.0)	4(16.0)	0.469	.685
	Single	11(44.0)	10(40.0)		
	Divorced or bereaved	12(48.0)	11(44.0)		
Religion	Have	14(56.0)	15(60.0)	0.685	.774
	Does not have	11(44.0)	10(40.0)		
Job status	Have	2(8.0)	6(24.0)	0.029	.113
	Does not have	23(92.0)	19(76.0)		
Alcohol drinking Age(years)	<15	3(12.0)	7(28.0)	0.016	.177
	16~19	14(56.0)	8(32.0)		
	20<	8(32.0)	10(40.0)		
Admission Frequency	<3	9(36.0)	11(44.0)	0.222	.491
	4~9	11(44.0)	7(28.0)		
	10<	5(20.0)	7(28.0)		
Experience of abstinence	Yes	18(72.0)	18(72.0)	0.910	.812
	No	7(28.0)	7(28.0)		
Period of abstinence (month)	1month	3(15.8)	1(5.6)	0.134	.407
	2~10months	6(31.6)	9(50.0)		
	11months	10(52.6)	8(44.4)		
Relapse period	immediately	4(21.1)	3(16.7)	0.554	.715
	1~2months	10(52.6)	8(44.4)		
	3months	5(26.3)	7(38.9)		

Exp. = Experimental group, Con. = Control group

**Table 3.** Homogeneity between the two groups in outcome variables

(N=50)

Variables	Exp.(n=25)	Con.(n=25)	t	p
Insight	7.72±10.68	9.40±6.13	0.682	.499
Abstinence self-efficacy	39.92±18.18	41.08±17.47	0.230	.819
Recovery	84.60±8.70	77.76±9.27	-2.691	.010

Exp. = Experimental group, Con. = Control group

**Table 4.** Effectiveness of 'Cognitive Capacity Enhancement Program'

(N=50)

Variables	Groups	Pre	Post	Difference	t /F	p
		M±SD	M±SD	M±SD		
Insight	Exp.(n=25)	7.72±10.68	13.72±4.13	6.00±11.70	-2.79	.006
	Con.(n=25)	9.40±6.13	11.48±6.37	2.08±4.50		
Abstinence self-efficacy	Exp.(n=25)	39.92±18.18	38.04±13.46	1.88±10.20	-0.71	.476
	Con.(n=25)	41.08±17.47	47.88±18.35	6.80±11.80		
Recovery	Exp.(n=25)	84.60±8.70	86.16±10.11	1.56±6.71	0.68*	.164
	Con.(n=25)	77.76±9.27	78.68±12.50	0.92±8.07		

Exp. = Experimental group, Con. = Control group

\*ANCOVA

## 5. Conclusion

The study findings suggest that 'Cognitive Capacity Enhancement Program' can enhance the insight of the hospitalized alcohol patients. The effort to improve the insight of the alcoholics remains important issue to the nurses. As the CCEP consisted structured topic and content in each session, the program might be helpful to do replication study in other alcohol patients. And the program developed here needed to be validated by further studies.

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