Relationship between Alcohol Dependence and Depression of Alcohol Dependent Inpatients

Bo-Yoon Choi[1] and Hyeon-cheol Jeong[2*]

[1]Dept. of Nursing, Graduate School, Sahmyook University
815 Hwarang Ro, Nowon-Gu, Seoul 139-742, Korea
[2]Dept. of Nursing, Professor, Sahmyook University
815 Hwarang Ro, Nowon-Gu, Seoul 139-742, Korea
[1]dahanminguo@hanmail.net, [2]love2hc@syu.ac.kr

Abstract

The purpose of this study was to provide essential data for treatment by analyzing the characteristics of patients with alcohol dependence and the relationship between depression and alcohol dependence. The subjects were 58 patients with alcohol dependence aged 20–70 in a psychiatric hospital. The Alcohol Dependence Scale (ADS) and Beck Depression Inventory (BDI) were used as assessment tools. The collected data were analyzed using SPSS WIN 21.0: a one-way ANOVA was conducted to examine differences in alcohol dependence contingent on the degree of depression and a Pearson's correlation coefficient was calculated to determine the relationship between depression and alcohol dependence. According to the study results, the majority of participants were in their 40s or younger; 35 participants (60.3%) were high school graduates and 19 participants (32.8%) earned more than 2 million won and less than 4 million won. There were significant positive correlation between depression and alcohol dependence (r=.283, p= .031). Alcohol dependence was significantly higher as the degree of depression increased: normal (16.67±13.99), mild depression (18.40 ±11.55), moderate depression (28.00 ± 17.74) (F= 3.99, p= .024). In conclusion, those with severe depression were highly dependent on alcohol and intervention for depression should be incorporated into future treatment for more effective alcohol disease management.

Keywords: Alcohol dependence, Drinking, Depression

1. Introduction

Humans have enjoyed drinking alcohol since prehistoric times and alcohol presents the same effect as a stimulant, reduces mental pain by affecting the central nervous system, and is used to maximize good mood [1]. Since ancient times, there has been a social culture where alcohol was served at every gathering. Therefore, in Korea, a drinking culture has developed to the extent as to be regarded as an essential element for interpersonal relationships. Such extensive awareness and culture surrounded by alcohol play a role to ensure that immoderate drinking habits may appear in all age groups. According to an announcement by the World Health Organization (WHO), the annual per capita alcohol consumption of Koreans is 12.3 L, which is 15th among 190 countries surveyed. Korea was ranked first among Asian countries, higher than China (average 6.71 L) and Japan (average 7.21 L) and, in particular, the consumption of products with high alcohol proof is reported to be pronounced in Korea [2]. Thus, there is a serious drinking problem in Korean society, indicating a problem that should be actively managed at the national level.

---

[*] Corresponding Author

Due to its high susceptibility toward dependence, continuously consuming a higher than average capacity leads to the accumulation of alcohol in our bodies, causing physical damage to a variety of organs, such as the liver, digestive system, and brain, as well as nutritional disorders and mental health consequences, such as anxiety, loss of control, depression, and social effects such as isolation [3]. According to the distribution of alcohol addicts by age, there is a higher proportion of addicts in their 40s and 50s because, at this stage of life, they are in a pivotal position in the workplace. In addition, most of these individuals are responsible for their household income, thus experiencing stress caused by the burden of responsibility, which results in depression [4].

Depression is also used as a representative indicator for the results of stress. That is, depression is the most common symptom caused by stress and most people drink alcohol as a management method for relieving symptoms when they are depressed [5]. When drinking alcohol, however, patients who are alcoholic experience a worsening of depression rather than an increase in positive affect and previous studies have reported the repetition of a vicious cycle: if continuously consuming alcohol, patients who are alcoholic experience negative life events and feel depressed by them and, eventually, find alcohol again to overcome the depressed feelings [6].

Similar to chronic diseases such as high blood pressure, diabetes, or back pain, depression is a disease causing social and physical disorders. More than 70% of suicide is caused by depression, and social costs are high due to long-term absence, productivity loss, early death due to suicide [7]. Moreover, in the case of patients with a chronic disease accompanied by depression, their depressed feelings discourage their motivation for treatment or interest in the disease, affecting medication adherence and reducing the effect of treatment [8]. According to a report by the WHO, the social and economic burden due to depression is increasing continuously and is expected to rank second among all diseases by 2020 [9].

Thus, the purpose of this study is to reduce the costs of alcohol consumption and provide essential data for treatment by analyzing the characteristics of patients with alcohol dependence as well as the relationship between depression and alcohol dependence.

2. Methods

2.1. Study Subjects

58 Patients with alcohol dependence, aged 20 to 70, who were hospitalized in "D" psychiatric hospital from April 1 to June 15, 2015 were selected to participate in the study. Those patients who severely denied their alcohol dependence were excluded. The necessary sample number was calculated using G*power 3.1.7, and the required number of subjects was calculated for a medium effect size of .4, level of significance of (α) .05, and test power ($1-\beta$) of .90. Based on these assumptions, the target recruitment sample size was 58 participants per group. The specific inclusion criteria were as follows:

- diagnosis of alcohol dependence based on DSM-IV criteria
- no more than a mild cognitive disorder
- no more than mild withdrawal symptoms
- ability to understand and respond to the questionnaire

2.2. Methods

The researcher explained the purpose of the study to patients hospitalized in the specialized alcohol ward and collected data using a structured self-administered questionnaire for subjects who provided written consent to participate. The researcher explained to the subjects that they could withdraw at any time during the survey without any resulting disadvantage. In addition, the researcher also explained that the survey details and results would not be used for purposes other than research and that those who completed the survey would receive a gift. The researcher reviewed the collected questionnaires and data whose credibility was suspected were excluded from the analysis. Of the questionnaires collected from 60 patients, 58 were included in the final analysis.

2.3. Research Tools

2.3.1. Alcohol Dependence Scale (ADS)

The Alcohol Dependence Scale standardized in Korean by Lee was used [10]. It consists of 25 self-report questions: 5 questions measuring the aspects of compulsive drinking, 8 questions measuring behavioral control disorders due to drinking, 6 questions measuring physical withdrawal symptoms related to drinking, and 6 questions measuring the perception of withdrawal symptoms related to drinking. Higher scores indicate higher alcohol dependence. In terms of internal consistency reliability, when the scale was developed, Cronbach's $\alpha = .87$ [10] and in this study, $\alpha = .92$.

2.3.2. Beck Depression Inventory (BDI)

Han standardized the Korean version of the Beck Depression Inventory (BDI) [11]. The BDI comprises 21 questions and consists of 4-point Likert-type scales assessing the emotional, cognitive, motivational, and physiological symptoms of depression. It is a self-report questionnaire, with individuals marking the most appropriate choice. Each response is rated from 0 to 3 points, depending on the degree, with a total score ranging from 0 to 63 points. Higher scores indicate more severe depression. For interpretation, 0–9 points are classified as normal, 10–18 points indicate mild depression, and more than 19 points signify moderate depression or higher [8]. In Kim & Lee's study targeting alcohol patients, Cronbach's $\alpha = .91$ [12]. In this study, $\alpha = .93$.

2.4. Data Analysis

The collected data were analyzed using SPSS WIN 21.0 program as follows:

• Frequencies, percentages, means, and standard deviations were calculated for the general characteristics of subjects;
• Differences in alcohol dependence contingent on the degree of depression were analyzed with a one-way ANOVA;
• The relationship between depression and alcohol dependence was analyzed using a Pearson's correlation coefficient.

3. Results

3.1. Analysis of General Characteristics

Most of the patients were aged 40s or younger (n=22; 37.9%) and were high school graduates (n=35; 60.3%). In the case of marital status, most people were married (n=34; 58.6%). In regards to type of health care, the majority had health insurance (n=45; 77.6%). Fifty-two people (89.7%) lived with their family. In terms of occupation, 30 patients (51.7%) were categorized as 'Other', followed by those in 'Professional worker' (n=14; 24.1%). In the case of monthly income, most patients earned more than 2 million won and less than 4 million won (n=19; 32.8%). Regarding hospitalization experience, 20 individuals (34.5%) were hospitalized more than twice and less than 4 times. In terms of current diseases, 'Other' was the category reported by most people (n = 39; 67.2%), followed by hypertension (n=11; 19.0%) Table 1.

Table 1. General Characteristics of Subjects

Characteristics		n	%
Age (year)	<40	22	37.9
	40-59	19	32.8
	≥60	17	29.3
Education	Elementary school	3	5.2
	Middle school	7	12.1
	High school	35	60.3
	College	13	22.4
Marital status	Unmarried	7	12.1
	Married	34	58.6
	Divorce & Separation	17	29.3
Medical insurance	Health insurance	45	77.6
	Type-Ⅰ Medicaid beneficiaries	6	10.3
	Type-Ⅱ Medicaid beneficiaries	7	12.1
Living arrangement	Live alone	5	8.6
	Family	52	89.7
	Relatives	1	1.7
Occupation	Office worker	5	8.6
	Technical worker	9	15.5
	Professional worker	14	24.1
	Others	30	51.7
Monthly income (1,000,000)	<100	9	15.5
	100-200	17	29.3
	200-400	19	32.8
	≥400	13	22.4
Hospitalization experience	≤1	16	27.6
	2-4	20	34.5
	5-7	15	25.9
	≥8	7	12.1
Disease	Hypertension	11	19.0
	Diabetes	7	12.1
	Cardiac disease	1	1.7
	Others	39	67.2

3.2. Analysis of ADS Scores by BDI Category

The differences in alcohol dependence contingent on the degree of depression were analyzed. The results indicate that alcohol dependence was significantly higher as the degree of depression increased: normal (16.67±13.99), mild depression (18.40±11.55), moderate depression (28.00±17.74) (F=3.99, p= .024) Table 2.

Table 2. Analysis of ADS Scores by BDI Category

N=58

BDI category	N	Mean	Standard deviation	F	p
Normal[a]	18	16.67	13.99	3.99	.024
Mild[a]	20	18.40	11.55		
Moderate[b]	20	28.00	17.74		
Total	58	21.17	14.17		

a, b = Scheffe test

3.3. Correlation Between ADS and BDI

In this study, there was a significant positive correlation between depression and alcohol dependence (r = .283, p = .031) Table 3.

Table 3. Correlation between ADS and BDI Scores

Variable		ADS
BDI	Pearson (r)	.283
	p	.031

4. Discussion

This study analyzed the differences in alcohol dependence by the degree of depression and the results indicate that alcohol dependence was significantly higher as the degree of depression worsened. Previous studies show that alcoholism itself may make the patient depressed or exacerbate existing depression [13]. When compared with no chronic disease, depression is more severe and sustained when accompanied by chronic disease and may be associated with substance abuse. Depression is reported to be strongly associated with chronic disease, thus interfering with the treatment of the disease by exacerbating the patient's treatment motivation and adherence [14]. Medication adherence has a significant impact on the treatment of patients and its importance is highlighted, especially in the case of chronic disease, such as alcohol addiction, that requires patients to take drugs regularly for a long time.

The lifetime prevalence of major depression disorder for patients with alcohol-related problems is 30–40% and the risk of suicide increases if accompanied by depression disorder, as does the risk of other substance disorders [15]. In addition,

given that the stress response of patients with depression disorders is more pronounced, the assessment of depression symptoms for patients with alcohol dependence is considered important. Relying on alcohol is also a depressing experience. Thus, according to previous studies, depression is one of the most common mental disorders of patients who are alcoholic [5].

Carney's [16] study reported that major depression disorder is an important independent risk factor of the main heart-related symptoms of coronary patients. In a BDI analysis targeting diabetics, Leedom [14] stated that the cognitive symptom of depression was noticeably demonstrated in patients with diabetic complications and that depression disorder increased the risk of diabetes occurrence. In particular, among those with chronic disease, many patients experienced symptoms of depression comorbid with high blood pressure, diabetes, and arthritis [17].

This study analyzed the relationship between depression and alcohol dependence, indicating a significant positive correlation. Lee's [18] and Choi's [19] study demonstrated a similar result in that there was a positive correlation between degree of alcohol use disorder diagnosis and depression. Moreover, in a study by Lee and Lee [5], drinking was found to affect depression inclination, and stress due to drinking appeared to act as a mediating variable between drinking and depression inclination. According to previous studies dealing with the negative consequences of alcohol dependence, depressive symptoms were found to be higher in the highly probable alcohol dependence group than in the non-alcohol dependence group and depression was reported as one of the most common mental disorders for patients who are alcoholic [20]. Excessive drinking causes psychological irritability, nervousness, insomnia, guilt, anxiety, and depression and the likelihood of suicide increases 30 times when depression symptoms are experienced by alcohol addicts [21]. The high depression inclination of patients with alcohol dependence may be a major problem in public health and the management of care services, as well as in personal problems because people demonstrating high rates of drinking among the general population are more likely to develop high alcohol use disorders [22].

In conclusion, the degree of patients' depression affects chronic disease, such as alcohol addiction, requiring long-term treatment. Therefore, combining the identification and treatment of depression with the treatment of alcohol addiction would have a positive impact on the management of chronic disease.

Acknowledgements

References

[1] D. A. Reigier, M. E. Famer, D. S. Rae, B. Z. Locke, S. J. Keith, L. L. Judd and F. K. Goodwin, "Comorbidity of mental disorders with alcohol and other drug abuse", Journal of the American Medical Association, vol. 264, no. 19, (1990), pp. 2511-2518.

[2] World Health Organization (WHO) Global Status Report on Alcohol and Health http://www.who.int/substance_abuse/publications/global_alcohol_report/en/, (2014).

[3] Y. H. Kim, B. B. Soe, C. Y. Lee and Y. H. Kim, "Lymphocyte Subpopulations and Proliferation of T cells, Phagocytic Activity of Leukocytes on Alcoholics", Journal of Experimental & Biomedical Sciences, vol. 2, no. 2, (1996), pp. 167-174.

[4] A. R. Park and J. S. Jun, "A Study on Relationship between Interpersonal Relationships and Suicide Ideation among Alcoholics: Focusing on the Mediating Effects of Depression", Health and Social Welfare Review, vol. 34, no. 1, (2014), pp. 379-407.

[5] B. J. Lee and J. S. Lee, "Mediating Effects of Alcohol-Induced Stress in the Relation between Alcohol Use and Depressive Symptoms", Social Science Reserch Review, vol. 23, no. 2, (2007), pp. 193-212.

[6] J. Lukassen and M. Beaudet, "Alcohol dependence and depression among heavy drinkers in Canada", Social Science & Medicine, vol. 61, no. 8, (2005), pp. 1655-1667.

[7] C. J. L. Murray and A. D. Lopez, "Alternative projections of mortality and disability by cause", 1990-2020: Global Burden of Study, Lancet., vol. 349, no. 9064, (1997), pp. 1498-504.

[8]   J. O. Park, D. H. Kim, Y. S. Seo, J. B. Kim and G. H. Lee, "Drug Compliance According to Severity of Depressive Symptoms in Medically Outpatients", Korean Journal of Health Promot., vol. 7, no. 1, **(2007)**, pp. 39-44.

[9]   N. Sartorius, T. B. Ustun, Y. Lecrubier, H. U. Wittchen, "Depression comorbid with anxiety: results from the WHO study on psychological disorders in primary health care", British Journal of Psychiatry, vol. 168, no. 1, **(1996)**, pp. 38-43.

[10] D. K. Lee, J. K. Shin, S. M. Yun and W. Byun, "A Reliability and Validity Study of the Korean Version of the Alcohol Dependence Scale in Alcoholics", Journal of Korean Academy of Addiction Psychiatry, vol. 4, no. 1, **(2000)**, pp. 30-37.

[11] H. M. Han, T. H. Yum, Y. O. Shin, K. H. Kim, D. J. Yoon and K. J. Jeong, "A Standardization Study of Beck Depression Inventory in Korea", Journal of Korean Neuropsychiatr Assoc., vol. 25, no. 3, **(1986)**, pp. 487-502.

[12] J. S. Kim and B. G. Lee, "A Study on the Effectiveness of Self-Love Program with Cognitive-Behavioral Therapy(CBT) on Alcohol Dependence", The Korean Journal of Clinical Psychology, vol. 31, no. 1, **(2012)**.

[13] R. C. Hall, T. P. Beresford and F. C. Blow, "Depression and Medical Illness: An Overview", Presentations of Depression: Depressive Symptoms in Medical and Other Psychiatric Disorders, New York: Wiley, **(1987)**, pp. 14-401.

[14] L. Leedom, W. P. Meehan, W. Procci and A Zeidler, "Symptoms of Depression in Patients with Type II Diabetes Mellitus", Psychosomatics, vol. 32, no. 3, **(1991)**, pp. 280-286.

[15] E. M. Kleiman, R. T. Liu and J. H. Riskind, "Integrating the interpersonal psychological theory of suicide into the depession/suicide ideation relationship:a short-term prospective study", Behavior Therapy, vol. 45, no. 2, **(2014)**, pp. 212-221.

[16] R. M. Carney, M. W. Rich, K. E. Freedland, J. Saini, A. te Velde, C. Simeone and K. Clark, "Major depress disorder predicts cardiac events in patients with coronary artery disease", Psychosom Med., vol. 50, no. 6, **(1988)**, pp. 27-33

[17] R. Choi and B. D. Hwang, "The Relevance of Chronic Disease Management and Mental Health", Journal of the Korea Academia-Industrial cooperation Society, vol. 15, no. 1, **(2014)**, pp. 306-315.

[18] S. Y. Lee, S. M. Lee, J. H. Park and M. S. Lee, "The study of drinking behaviors, health status and mental health service- Heavy drinker who have visited emergency center of public hospital in Seoul", The Mental Health, vol. 3, no. 1, **(2012)**, pp. 33-37.

[19] B. Y. Choi and H. C. Jeong, "A Study on the Relationship between Drinking Behavior and Depression of Adult Men Alcohol-dependent Patients", Proceedings of International workshop of Healthcare and Nursing 2015, Jeju, Korea, **(2015)** August 19-22.

[20] K. J. Yoo, B. Y. Lee and M. Y. Lee, "Accompanying Depression and Somatization in Alcoholics", The Korean Neuropsychiatric Association, vol. 30, no. 1, **(1991)**, pp. 146-158.

[21] H. J. Lee and J. Jekal, "Survey on alcohol use of workers for developing employee assistance program", The Korean Alchohol Reserch Foundation, Seoul, http://www.karf.or.kr/, **(2002)**.

[22] C. McIntosh and B. Ritson, "Treating Depression Complicated by Substance Misuse", Advances in Psychiatric Treatment, vol. 7, no. 5, **(2001)**, pp. 357-364.