

# The Relationship between AUDIT Scores and Mental Health Counseling among Korean Adults 20 Years Old or Over

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## Abstract

This study tries to examine the relationship between AUDIT scores and mental problem counseling among Korean adults 20 years old or over. The source of this research is the raw data contained in the Korea Health Statistics 2012: Korea National Health and Nutrition Examination Survey, KNHANES v-3 published by the Ministry of Health and Welfare and the Korea Center for Disease Control and Prevention (CDC). From the raw data, the respondents who were below 20 years old, and did not answer any of the ten AUDIT questions were excluded, and, finally, 4681 respondents were used for analysis. The data was analyzed with the SPSS Version 12.0 WIN program. The analysis found that those who belong to the problematic drinking group seek mental problem counseling 2.4 times as often as those who belong to the normal drinking group ( $p < .01$ ), and that those who belong to the alcoholic abuse and dependence group did it 2.8 times as often as those who belong to the normal drinking group ( $p < .05$ ). The analysis found that the problematic drinking group and the alcohol abuse and dependence group were related with mental problem counseling. To solve the problem, it seems necessary to establish an institution designed to build sound drinking culture and reduce mental problems.

**Keywords:** Alcohol, AUDIT, Mental Health

## 1. Introduction

The World Health Organization (WHO)<sup>1,2</sup>, to establish sound drinking culture by using a diagnosis test, developed the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT divides people into three groups: the normal drinking group, the problematic drinking group, and the alcohol abuse and dependence group. To make the diagnosis test, 10 questions are given to the respondent, with scores of the answer to each question ranging from 0 to 4. The total scores the respondent can get by answering 10 questions range from 0 to 40. Those

who earn 16 points or over are classified as belonging to the alcohol abuse and dependence group.

Lee and Nho<sup>3</sup>, in their classification of people by the AUDIT, found that the alcohol abuse and dependence group is 2 times more likely to experience depression than the normal drinking group. In addition, they also found that the problematic drinking group and the alcohol abuse and dependence group are likely to consider committing suicide 1.5 times and 2 times as often as the normal drinking group is.

Lee<sup>4</sup> expected that alcoholics under greater stress would be less satisfied with their life since stress might

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negatively affect life satisfaction. Lee et al<sup>5</sup> reported that age, self-perceived health, smoking, and sleeping time were the factors influencing problem drinking for the elderly.

Jung<sup>6</sup>, who analyzed the psycho-social factors of problem drinking for college students, found that depression, sensation seeking, drinking motivation, and parents' drinking problems were correlated with problem drinking: those who were more depressed, who had a greater tendency of sensation seeking, and who were more motivated to drink were more likely to have problem drinking. Problem drinking may occur, regardless of age, and exert adverse effects on mental health.

Lee<sup>7</sup> and Park et al<sup>9</sup> suggested the need to improve social awareness of mental health with the aim of reducing the harmful influences of drinking and mental health problems. He also suggested the need to screen mental health problems in their early stages and to provide good treatment service. Lastly, he suggested the need to develop and expand systematic systems to prevent, screen, and treat drinking and mental health problems.

Drinking can be the factor that may positively or negatively affect mental health. However, excessive drinking can have an adverse influence on mental health. This study aimed to determine correlation between mental health counseling and the AUDIT classification presented by the World Health Organization (WHO)<sup>1,2</sup>. This study is significant in that there are few studies on mental health counseling while the research on mental health has been conducted continuously.

This research tries to examine the relationship between the AUDIT scores and mental problem counseling among adults 20 years old and over in Korea. It aims to improve mental health of those who drink alcohol, and reduce bad effects of drinking problem. And, it wants to provide basic data for the establishment of sound drinking culture, and improvement of mental health.

## 2. Materials and Methods

### 2.1 Research Tools

The material for this research is the raw data contained in the Korea Health Statistics 2012: Korea National Health and Nutrition Examination Survey, KNHANES v-3 published by the Ministry of Health and Welfare<sup>8</sup> and the Korea Center for Disease Control and Prevention (CDC).

To know drinking habits of people, all the respondents below 20 years old were excluded from the data. And, among the respondents 20 years old or over, those who had missing values to some questions were also excluded. Among the total 8058 respondents, 4681 respondents were used for analysis excluding 3377 respondents who were below 20 year old, and who did not answer some questions.

The variables used in this research are related with the following three categories: socio-economic characteristics, drinking behavior, and mental health. Variables in the socio-economic characteristics are gender, age, educational level, house income, and job. Variables related with drinking behavior are experiencing injury caused by drinking, having received advice on cutting down on drinking, and AUDIT. The items concerning mental health covered mental health counseling.

The independent and dependent variables in this study are as follows: the dependent variable was mental health counseling; the independent variables were socio-economic and drinking characteristics; the socio-economic characteristics included gender, age, household income, education level, and occupation; and the drinking characteristics included drinking-related injury, temperance recommendation, and AUDIT.

To check drinking-related problems of adults 20 years old and above, this study used the AUDIT. The AUDIT the WHO and Babor et al<sup>1,2</sup> suggested is the acronym of Alcohol Use Disorders Identification Test. It consists of 10 questions. The scores of the answer for each question range from 0 to 4. The total scores of the answers for 10 questions can be from 0 to 40 points. By adding points a respondent gets, he or she is classified into one of the three groups: the normal drinking group, the problematic drinking group, and the alcoholic abuse and dependence group. The normal drinking group consists of those who get scores from 0 to 7 from the AUDIT, the problematic drinking group consists of those who get scores from 8 to 15, and the alcoholic abuse and dependence group consists of those who get scores of 16 or over.

### 2.2 Analytical Method

The data used in this research were analyzed using the SPSS Version 12.0 WIN program. Specifically, frequency, percentile,  $\chi^2$ , and dichotomous logistic regression analysis were used. The statistical significance level was set to be  $p < 0.05$ .

### 3. Result

#### 3.1 Variation in Mental Health Counseling by Socio-Economic Characteristics

The differences in mental health counseling by the socio-economic characteristics are presented in Table 1. Females (78.9%) were statistically significantly more likely to get mental health counseling than males (21.1%)( $p < .001$ ). No significant difference was found by

the other items: age, household income, education level, and occupation.

#### 3.2 Effects of Socio-Economic Characteristics on Mental Health Counseling

Dichotomous logistic regression was used to analyze the effects of the socio-economic characteristics on mental health counseling. Dichotomous logistic regression is

**Table 1.** Variation in mental health counseling by socio economic characteristics

		Mental health counseling (4678)		$\chi^2$	P
		Yes(109)	No(4572)		
<b>Gender</b>	Male	23(21.1)	2122(46.4)	27.476	.000***
	Female	86(78.9)	2450(53.6)		
<b>Age</b>	20's	16(14.7)	543(11.9)	5.628	.229
	30's	26(23.9)	885(19.4)		
	40's	25(22.9)	864(18.9)		
	50's	15(13.8)	890(19.5)		
	60's≤	27(24.8)	1390(30.4)		
<b>Household income</b>	Low	21(19.4)	731(16.1)	1.257	0.739
	Mid low	28(25.9)	1164(25.6)		
	Mid high	30(27.8)	1262(27.7)		
	High	29(26.9)	1396(30.7)		
<b>Education level</b>	Elementary school graduates	25(22.9)	991(21.7)	5.580	0.134
	Junior high school graduates	18(16.5)	456(10.0)		
	High school graduates	33(30.3)	1613(35.3)		
	University graduates≤	33(30.3)	1511(33.1)		
<b>Occupation</b>	Managers and professionals	12(11.0)	660(14.4)	9.208	0.162
	Clerks	11(10.1)	421(9.2)		
	Sales and service workers	13(11.9)	559(12.2)		
	Agricultural and fishery workers	5(4.6)	324(7.1)		
	Skilled workers	4(3.7)	438(9.6)		
	Manual workers	10(9.2)	406(8.9)		
	Unemployed (housewives and students)	54(49.5)	1760(38.5)		

\*\*\* $p < .001$

used when dependent variables are dichotomous and the dependent variable in this study was “mental health counseling.” The independent variable was converted into the dummy variable. The results are presented in Table 2.

Males were more likely to get mental health counseling than females ( $p < .001$ ) and the subjects in their twenties were less likely to get mental health counseling than those in their fifties (approx. 3 times,  $p < .01$ ) or sixties (approx. 3 times,  $p < .01$ ). Elementary school graduates were less likely

to get mental health counseling than high school (approx. 2.5 times,  $p < .05$ ) or college graduates (approx. 2.5 times,  $p < .05$ ).

### 3.3 Variation in Mental Health Counseling by Drinking Characteristics

The differences in mental health counseling by the drinking characteristics are presented in Table 3. No drinking-related injury was found in most cases ( $p < .001$ ). No

**Table 2.** Effects of socio-economic characteristics on mental health counseling

		B	Wald	Odds Ratio	P lower	95% Confidence interval	
						upper	
<b>Gender#</b>	Male			1.00			
	Female	-.926	13.373	.396	.000***	.241	.651
<b>Age#</b>	20's			1.00			
	30's	-.065	.039	.937	.843	.493	1.780
	40's	.053	.026	1.055	.872	.549	2.025
	50's	1.103	6.691	3.013	.010**	1.306	6.949
	60's≤	1.266	8.081	3.545	.004**	1.481	8.485
<b>Household income#</b>	Low			1.00			
	Mid low	.340	1.148	1.405	.284	.754	2.619
	Mid high	.321	.961	1.379	.327	.725	2.620
	High	.393	1.328	1.481	.249	.759	2.890
<b>Education level#</b>	Elementary school graduates			1.00			
	Junior high school graduates	-.402	1.283	.669	.257	.334	1.341
	High school graduates	.889	4.954	2.432	.026*	1.112	5.318
	University graduates≤	.948	4.655	2.580	.031*	1.091	6.105
<b>Occupation#</b>	Managers and professionals			1.00			
	Clerks	-.227	.282	.797	.595	.345	1.842
	Sales and service workers	-.002	.000	.998	.996	.426	2.334
	Agricultural and fishery workers	.157	.071	1.169	.789	.371	3.687
	Skilled workers	.576	.876	1.779	.349	.532	5.944
	Manual workers	-.095	.040	.909	.842	.358	2.313
	Unemployed (housewives and students)	-.277	.599	.758	.439	.376	1.528

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$  # Dummy variable

**Table 3.** Variation in mental health counseling by drinking characteristics

Yes(109)		Mental health counseling (4678)		$\chi^2$	p
		No(4572)			
<b>Drinking-related injury</b>	None	97(89.0)	4341(94.9)	13.699	.001**
	None for the past year	7(6.4)	183(4.0)		
	Injured for the past year	5(9.4)	48(1.0)		
<b>Temperance recommendation</b>	None	85(78.0)	3755(82.1)	1.422	0.491
	None for the past year	10(9.2)	309(6.8)		
	Injured for the past year	14(12.8)	508(11.1)		
<b>AUDIT</b>	Normal drinking group.	84(77.1)	3220(70.4)	3.794	0.150
	Problem drinking group	13(11.9)	885(19.4)		
	Alcohol abuse dependence group	12(11.0)	467(10.2)		

\*\*p&lt;.01

statistical significance was found by the other items: temperance recommendation and AUDIT.

### 3.4 Effects of Drinking Characteristics on Mental Health Counseling

Dichotomous logistic regression was used to analyze the effects of the drinking characteristics on mental health counseling. Dichotomous logistic regression is used when dependent variables are dichotomous and the dependent variable in this study was 'mental health counseling'. The independent variable was converted into the dummy variable. The results are presented in Table 4.

Dichotomous logistic regression was used to analyze the effects on mental health counseling by AUDIT grouping. On the basis of the AUDIT scores, the 'normal drinking group' was less likely to get mental health counseling than the 'problem drinking group' (approximately 2.4 times,  $p < .01$ ) or the 'alcohol abuse/dependence group' (approximately 2.8 times,  $p < .05$ ).

## 4. Discussion

This study aimed to examine the correlation between the AUDIT scores and mental health counseling for people aged 20 or older. To do this, raw data from the Ministry of Health and Welfare (MW)<sup>8</sup> and the Korea Centers for Disease Control and Prevention (CDC) were used. The results showed that the problem drinking and

alcohol abuse/dependence groups had their mental health affected.

Lee and Nho<sup>3</sup> found that those who belong to the former two groups are also more likely experience depression and think of committing suicide. Lee et al<sup>9</sup>, in their study on mediating effect of mental health on problematic drinking, proved that, for men, subjective health level has effects on problematic drinking by the mediation of mental health. The above studies are common in proving that problematic drinking can influence mental health. This research is also consistent with the findings of the above researches.

Shin<sup>10</sup> contended that psychological vulnerability had a direct impact on drinking problems. He also indicated that it could have an indirect impact through the medium of drinking motivation. That is, one may drink with the aim of relieving psychological anxiety and drinking behavior may cause drinking problems. The result of this study that drinking-related injury and problem drinking in AUDIT affected mental health is consistent with that of Shin<sup>10</sup>.

Kang and Kim<sup>11</sup> indicated that drinking refusal self-efficacy was an immediate determinant of behavioral changes. So they suggested that every problem drinker should reinforce self-efficacy, regardless of temperance intention. Their suggestion seems to imply that weak drinking refusal can lead to problem drinking and that good drinking refusal is less likely to cause problem drinking.

**Table 4.** Effects of drinking characteristics on mental health counseling

		B	Wald	Odds Ratio	p	95% Confidence interval	
						lower	upper
<b>Drinking-related injury#</b>	None			1.00			
	None for the past year	-.653	2.179	.520	.140	.218	1.239
	Injured for the past year	1.855	11.163	.156	.001**	.053	.464
<b>Temperance recommendation#</b>	None			1.00			
	None for the past year	-.546	2.071	.579	.150	.275	1.218
	Injured for the past year	-.707	2.574	.493	.109	.208	1.170
<b>AUDIT#</b>	Normal drinking group.			1.00			
	Problem drinking group.	.875	6.761	2.399	.009**	1.240	4.639
	Alcohol abuse dependence group	1.041	4.360	2.831	.037*	1.066	7.517

\*p<.05 \*\*p<.01 \*\*\*p<.001 # Dummy variable

Yoo et al<sup>12</sup> noted that greater alcohol dependence was more likely to cause drinking-related injury but had no correlation with the non-drinking-related injury occurrence rate. In other words, greater alcohol dependence can lead to more frequent occurrence of injury. This study found that drinking-related injury might affect mental health counseling; that is, injury caused by drinking was strongly correlated with mental health.

Lee and Jung<sup>13</sup> noted that drinking involvement, drinking attitude, and perceived behavior control might affect problem drinking intention. They indicated that drinking involvement might negatively affect problem drinking intention.

Lee<sup>14</sup>, Yoo et al<sup>15</sup>, Jang<sup>16</sup>, and Kim et al<sup>17</sup> also noted that problem drinking might negatively affect the body and health. To put the results together, several factors, including drinking attitude, psychological state, drinking refusal behavior, and problem drinking, have physical and mental impacts. To solve these problems, it is necessary to develop diverse programs to establish good drinking culture, give education about good drinking and temperance, promote good drinking, and activate leisure activities. To do this, it is not only necessary to change personal awareness but also to establish a social system.

Therefore, efforts should be made to reinforce the development of an institutional device that can manage information about drinking and to provide education about good drinking. These efforts are expected to reduce

such adverse effects as mental and physical injuries. It is also necessary to conduct continuous research to prevent drinking from causing mental and physical injuries.

Despite its significance, this study has a limitation: the data on missing values in those aged 20 or older were excluded from the analysis. It is therefore necessary to be careful in comparing the results of this study with those of other studies on mental health counseling.

## 5. Conclusions

The analysis showed that those who belong to the problematic drinking group and those who belong to the alcoholic abuse and dependence group seek mental problem counseling more often than those who belong to the normal drinking group. To solve drinking problems, it is necessary to establish institutions designed to reduce bad effects of drinking, and to educate people on desirable drinking, and to publicize it.

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