

## Drinking Patterns and Needs for Nutrition Education of Male Workers Diagnosed by NAST, Alcoholism Screening Test of Seoul National Mental Hospital

Soonmyung Hong,<sup>†</sup> Soonim Jung, Miree Kim, Jeeeye Jo

*Department of Food and Nutrition, University of Ulsan, Ulsan, Korea*

### ABSTRACT

The aim of this study was to identify the drinking patterns and needs for nutritional education of male workers. The subjects in this study were 285 male workers in Ulsan City. The average age of the subjects was 41.2 years old, height was 171.8cm, weight was 69.6kg and Body Mass Index(BMI) was 23.6kg/m<sup>2</sup>. The subjects were classified into 3 drinking patterns such as 'normal drinker(ND)', 'excessive drinker(ED)', and 'alcoholic drinker(AD)' diagnosed by NAST (Alcoholism Screening Test of Seoul National Mental Hospital). Each group was 31.6%(ND), 43.2%(ED) and 25.3%(AD). The amount of one time drinking, frequency, kind of alcohol and spending money were significantly different among the groups. 87.8% of ND thought that the self identity of drinking habits was good. But twenty seven percent of AD thought that it was just not bad, one-half of them(51.4%) thought they seemed to have problems and 20.8% of them thought they were serious. 38.9%(AD), 22.8%(ED) and 6.7%(ND) of each group tried to abstain by turn. Reasons of trying to abstain were health problems, disharmony of family and bad influence on the business and job place. The methods of abstaining were to avoid a drinking gathering or to refuse drinking in the party. 70.8% of AD, 59.3% of ED and 40% of ND thought they needed to take an educational program about abstaining. 58.3% of AD, 43.1% of ED and 31.1% of ND answered they would join an alcohol program. (*J Community Nutrition* 8(3): 142~146, 2006)

**KEY WORDS:** alcohol · drinking pattern · NAST · alcohol program.

---

### Introduction

---

Scientific and media reports have suggested that light to moderate drinking may reduce the risk of coronary heart disease and the possibility of health benefits of moderate alcohol consumption has greatly increased in the past decade. Fifty-seven percent of Canadians believed that moderate drinking had health benefits, forty-seven percent defined moderate drinking as drinking less than one drink a day and believed that this was good for health. Belief in the health benefits of moderate drinking was more common among men, aged 45 or older, better-educated and more frequent drinkers. Some drinkers at risk for alcohol problems may be influenced

to drink by the belief that this can have health benefits or use this belief as an excuse for drinking(Ogborne, Smart 2001). But health benefits seem to be different among men and women and vary by age. Beneficial effects of alcohol might originate by other substances in alcohol(Gronbaek 2004). Also, the concept of stress-relief by alcohol as basic motivation for developing alcohol drinking habits is only applicable to subgroups of drinkers(Masalkar, Abhang 2005). Additionally, alcohol as empty calorie food and poor nutrition or mal-absorption of chronic drinkers leads to deficiencies of anti-oxidative vitamins in their bodies and these oxidative impairments cause many cellular component damages such as DNA, proteins and lipids and then lead to liver damage (Sillaber, Henniger2004; Kim 2004; Son 2004). There is no effect on boosting the immune system, either(Watzl 2002). Regarding social problems, although drunk driving has decreased in many countries during the past 20 years, alcohol consumption is still one of the main causative factors in road traffic accidents. Both of quantity or frequency of alcohol

---

<sup>†</sup> Corresponding author: Soon-Myung Hong, Department of food & Nutrition, University of Ulsan, San 29 Muger 2-dong, Nam-gu, Ulsan 680-749, Korea  
Tel: (052) 259-2374, Fax: (052) 259-1699  
E-mail: smhong@ulsan.ac.kr

consumption are related to drunk driving and the probability of alcohol-related injuries(Eensoo et al. 2005).

In Korea, social gatherings, business meetings and tight social relationships boost drinking and the related health problems are getting serious(Kim 2004; Lee 2006). Recently, chronic drinking of workers influences on health, obesity, the relationship to family. So we should make a tool for alcohol programs. Through this research, we would propose the content and direction of education program and preventing alcohol use disorders.

## Subjects and Methods

The data were from a survey of 285 male factory workers of Ulsan City in 2003. The survey was consisted of three parts: 1) frequency and habit of drinking, 2) how to diagnose people with drinking problems, and 3) social aspects and problems with alcohol. Subjects were catalogued into 3 groups by the result of NAST. For significant differences among groups, one-way analysis of variance(ANOVA) or  $\chi^2$  test was conducted using SPSS.

## Results and Discussion

### 1. General characteristics of the subjects

The result is shown by Table 1. The average age was  $41.2 \pm 8.5$  years old, height was  $171.8 \pm 4.9$ cm, weight was  $69.6 \pm 4.9$ kg and Body Mass Index (BMI) was  $23.6 \pm 2.3$ kg/m<sup>2</sup>. The subjects were classified into 3 drinking patterns such as 'normal drinker (ND)', 'excessive drinker (ED)', 'alcoholic drinker (AD)' diagnosed by NAST (Alcoholism Screening Test of Seoul National Mental Hospital). Each group was 31.6% (ND), 43.2% (ED) and 25.3% (AD). Their general characteristics were not different statistically by groups.

### 2. Diversity of diagnosis of alcoholism

In the result of AUDIT-K (Alcohol Use Disorder Identification Test of Korea), the 'normal' group was 53.7%, 'ha-

bitual excessive drinking' group was 31.6%, 'problem drinking' group was 7.7% and 'alcoholism' group was 7%. The results of CAGE (Cutting, Annoyance by criticism, Guilty feeling, Eye-opener) were 74.7% of 'normal' and 25.3% of 'habitual drinker'. Differences between results are shown in Fig. 1 and Fig. 2. Usually, the upper three methods are used by alcohol counselling centers. Two figures and Table 1 show that people can be diagnosed very differently depending on the method we use. So, the diagnosing methods of alcoholism have to be more clarified.

### 3. Attitude of drinking

ND usually drinks soju (61.1%) with 70,000won, 2 - 3 times per one month, ED drinks soju (69.1%) with 21,000 won, 2 - 3 times per one month or 1 - 2 times per week and AD drinks soju (76.4%) with 140,000won, 2 - 4 times per one month or 1 - 2 times per week. The results are shown in Table 2 and Fig. 3. There is statistically significant difference between the groups. Fig. 3 and 4 shows that the amount of one time drinking is significantly different by the

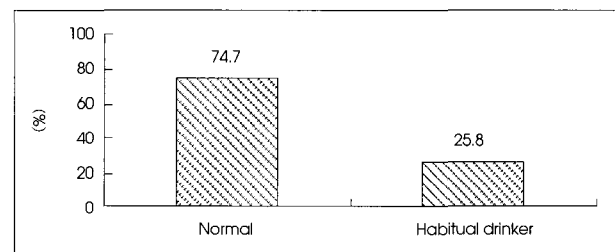


Fig. 1. Classification of drinking patterns diagnosed by CAGE (Cutting, Annoyance by criticism, Guilty feeling, Eye-opener).

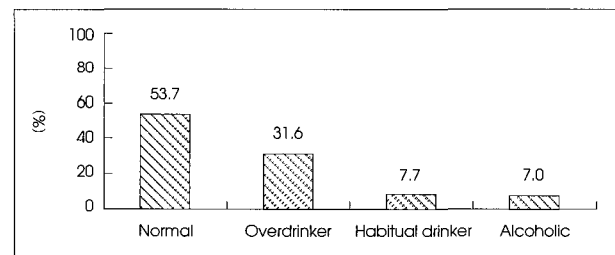


Fig. 2. Classification of drinking pattern diagnosed by Audit-K (Alcohol Use Disorder Identification Test of Korea).

Table 1. General characteristics of subjects

	ND	ED	AD	Total sample
Number (%)	90 (31.6)	123 (43.2)	72 (25.3)	285 (100)
Age (years)	$39.7 \pm 8.2$	$40.2 \pm 8.9$	$39.7 \pm 8.2$	$41.2 \pm 8.5$
Height (cm)	$171.1 \pm 5.2$	$172.1 \pm 4.5$	$172.2 \pm 5.0$	$171.8 \pm 4.9$
Weight (kg)	$68.8 \pm 8.3$	$69.9 \pm 7.0$	$69.9 \pm 7.8$	$69.6 \pm 4.9$
BMI (kg/m <sup>2</sup> )	$23.5 \pm 2.6$	$23.6 \pm 2.1$	$23.5 \pm 2.1$	$23.6 \pm 2.3$

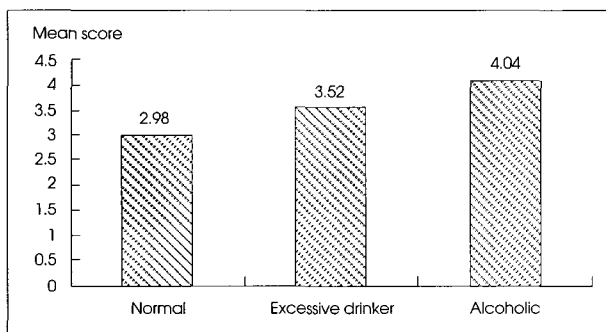
ND: normal drinker, ED: excessive drinker, AD: alcoholic drinker

**Table 2.** Frequency, amount, spending money of drinking

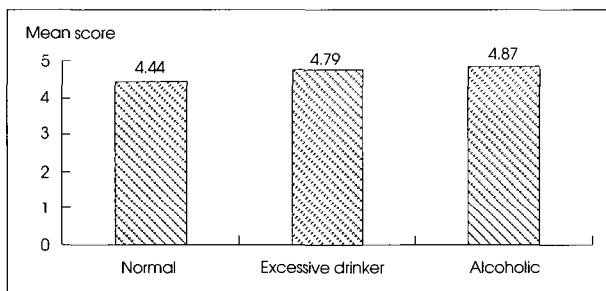
	ND	ED	AD	
Spending money for drinking/month (mean won)	70,000	21,000	140,000	F 14.830 ***
Kind of alcohol (%)				$\chi^2$
Soju	61.2	69.2	76.4	
Beer	22.2	27.6	18.1	
Whiskey	1.1	1.6	0.0	21.524**
Wine	4.4	1.6	0.0	
Traditional wine	11.1	0.0	5.6	
Frequency of drinking per month (%)				
Almost everyday	2.2	3.3	11.1	
1 – 2 times per week	25.6	29.3	26.4	
3 – 4 times per month	6.7	20.3	29.2	
2 – 3 times per month	45.6	30.1	29.2	31.604***
Less than 1 time per month	20.0	17.1	4.2	
Total	100.0	100.0	100.0	

\*\*:  $p < 0.01$ , \*\*\*:  $p < 0.001$ 

ND: normal drinker, ED: excessive drinker, AD: alcoholic drinker

**Fig. 3.** Amount of one time drinking of each group by NAST.

1. Soju 1~2 glasses (Beer-less than one bottle), 2. Soju 3~4 glasses (Beer-2 bottles), 3. Soju 5 glasses 4. Soju 1 bottle (Beer-4 bottle), 5. Soju 3 bottles (Beer-8 bottles).

**Fig. 4.** Amount of alcohol when you over drink of each group by NAST. 1. Soju 1~2 glasses, 2. Soju 3~4 glasses, 3. Soju 5 glasses, 4. Soju 1 bottle, 5. Soju 3 bottles.

pattern of drinking ( $F = 40.259$ ,  $p < 0.001$ ), but when they overdrink, the amounts were not statistically different. It means that the average drinking amount is more important than one time overdrinking, so they need to be educated to consider their usual drinking amount.

#### 4. Attempt to abstain from drinking

The attempts to abstain from drinking in AD group were high by avoiding a party or drinking meeting (23.6%) and trying not to drink too much at the drinking place (13.9%). Attempts to abstain from alcohol and the efforts to avoid drinking meetings were statistically different between the groups. Especially AD groups tried to avoid a party or drinking meetings more. These results were shown in Table 3.

#### 5. Social aspect of drinking

Specific Korean drinking style is shown in Table 4. It explains that drinking is boosted by social networking and social drinking in Korea is special problem than habitual drinking. Specifically, the AD group only answered highly that they do not know how to get rid of stress, drink because of business networking and do habitual drinking, so they drink alcohol, instead. The result says, when we organize a program to abstain from drinking, first, we have to consider how to release stress from work and the aspects of social drinking. The alcohol program has to be different following the drinking groups.

#### 6. Demands of nutrition education program for abstaining from drinking

As Table 5 shows, subjects answered that they need to have an education program about abstaining i.e., 70.8% of AD, 59.3% of ED, 40% of ND. The group of AD (58.3%), ED (43.1%) and ND (31.1%) answered that they would join the education course. The education content of what they want was 'the environment not to enforce to drink' and the

**Table 3.** Frequency and method<sup>1)</sup> to try to abstain from liquor (%)

	ND	ED	AD	$\chi^2$
Frequency to try abstain from liquor				
I tried to abstain from liquor at least one time this year	6.7	22.8	38.9	26.283***
Method to abstain from liquor				
I avoid party or drinking meetings	0	12.2	23.6	30.297***
I try not to drink too much at the drinking place	5.6	12.2	13.9	3.943
I use the program to quit drinking	0	0.8	0	1.322
I eat snacks or food instead of liquor	2.2	3.3	5.6	0.508

\*\*\*:  $p < 0.001$ 

ND: normal drinker, ED: excessive drinker, AD: alcoholic drinker

<sup>1)</sup> Multiple responses were allowed.**Table 4.** Reason why it is difficult to abstain from liquor<sup>1)</sup> (%)

	ND	ED	AD	$\chi^2$
Because of business network drinking	3.3	4.1	16.7	11.824**
Because of habits of drinking	1.1	4.1	13.9	13.305**
There is no way to get rid of stress	0.0	3.3	18.1	26.087***
I don't know how to get professional information	0.0	0.8	1.4	1.146
Familiar friends ask me to drink together	2.2	10.6	8.3	6.459*
I don't need to abstain	0.0	3.3	1.4	3.264

\*:  $p < 0.05$ , \*\*:  $p < 0.01$ , \*\*\*:  $p < 0.001$ 

ND: normal drinker, ED: excessive drinker, AD: alcoholic drinker

<sup>1)</sup> Multiple responses were allowed.**Table 5.** Demands of nutrition education program for abstaining from drinking (%)

	ND	ED	AD	$\chi^2$
Do you think you need to take an education to abstain (yes)	40.0	59.3	70.8	16.531***
Would you join an education program about drinking (yes)	31.1	43.1	58.3	12.182**
What kind of education content do you want to take? <sup>1)</sup>				
Social environment not to enforce to drink	51.1	39.8	45.8	2.706
How to get rid of stress	22.2	30.1	34.7	3.284
How to refuse to be asked to drink	8.9	8.9	12.5	0.743
Excessive drinking, alcohol abuse	3.3	6.5	5.6	1.064
Influence on health and the body	31.1	30.9	29.2	0.086
Effective social relationship techniques	27.8	28.5	30.6	0.160
Influence on the family	15.6	13.0	18.1	0.918

\*\*:  $p < 0.01$ , \*\*\*:  $p < 0.001$ 

ND: normal drinker, ED: excessive drinker, AD: alcoholic drinker

<sup>1)</sup> Multiple responses were allowed.**Table 6.** Self recognition of current habits of drinking (%)

	ND	ED	AD	$\chi^2$
Very good	23.2	12.2	4.2	
Good	64.4	39.0	23.6	
I have a little problem	12.2	46.3	51.4	81.992***
I have a serious problem (alcoholic)	0	2.4	20.8	

\*\*\*:  $p < 0.001$ 

ND: normal drinker, ED: excessive drinker, AD: alcoholic drinker

next, 'influence of alcohol on the body', 'how to solve stress', 'effective techniques for good relationships with people' and 'bad influences of drinking on the family'. What they want to take through the education is no significant difference between groups, but the rate of thinking that they need to take a program and will join to was statistically different. So, the

education program has to be considered with the results of the survey.

### 7. Self recognition of current habit of drinking

87.6% of ND thought that 'self identity of drinking habit' was good, but 27.8% of AD answered the same way, but 51.4% of AD said 'I seem to have a problem' and 20.8% of

them answered 'It's serious'. Over 72% of AD knows that their drinking attitude and recognition are not good. So, they are ready to start to abstain from drinking, but we should study more about what makes them hesitate, or not to go out from drinking. And how to escape from the Korean social drinking problems should be also considered. The results are shown in Table 6.

---

## Summary and Conclusion

---

The aim of this study was to identify the drinking patterns and needs for nutritional education of male workers. We attempted to classify drinking alcohol groups among male workers, but the method of alcoholism was diverse. We could not classify it clearly, so this part has to be researched further.

The workers are on the socially vigorous steps of life and business, but their health problems are receiving more focus recently. And alcohol is the hot issue of health related factors. We have a different social culture of drinking when we compare it to western people. In Korea, social gatherings, business meetings and tight social relationships boost drinking.

1) 285 of male workers were differentiated by ND of 90 (31.6%), ED of 123 (43.2%), AD of 72 (25.3%). Their height was  $171.8 \pm 4.9$ cm, weight was  $69.6 \pm 4.9$ kg, and BMI was  $23.6 \pm 2.3$ kg/m<sup>2</sup>.

2) Through the test of CAGE, NAST and AUDIT-K which is used normally by alcohol centers, we tried to classify the groups with problems. In the CAGE, the 'normal' group was 74.7% and the 'alcohol dependent' group was 25.3%. The results of the AUDIT-K test showed 'normal' group of 53.7%, 'habitual excessive drink' group of 31.6%, 'problem drinker' of 7.7%, alcohol addition of 7%. And this study was analyzed by basis of NAST.

3) Amount of one time drinking, frequency, kinds of alcohol and spending money were significantly different among the groups.

4) 87.8% of ND thought that their drinking habit was good, but 51.4% of AD said they seem to have some problems and 20.8% of them answered 'It's serious'.

5) The methods of abstaining was avoiding a drinking gathering and refusing to drink in the party. The reason of difficulty to abstain was that there was no way of releasing their stress, difficulty from business, habitual drinking and coworkers insistence to drink.

6) When they had serious alcohol problems, they wanted

the education more and had strong will to join the program. The educational content they wanted was not to insist to drink, influence of alcohol on the body, how to solve stress, effective techniques for the good relationships with people and the bad influences of drinking on the family.

Recently, chronic drinking of workers influences on health, obesity, the relationships to family and their business. When we develop an educational program, diverse groups need to be educated by different beginnings and courses. Through this research, we would propose the content and the direction of preventing alcohol use disorder and the educational program. Also, following more technical and overall classifying of drinking habits, we have to develop the education content of practical and behavioral modifications.

---

## References

---

- Ogborne AC, Smart RG (2001): Public opinion on the health benefits of moderate drinking: results from a Canadian National Population Health Survey. *Addiction* 96: 641-649
- Gronbaek M (2004): Epidemiologic evidence for the cardioprotective effects associated with consumption of alcoholic beverage. *Pathophysiology* 10: 83-92
- Masalkar PD, Abhang SA (2005): Oxidative stress and antioxidant status in patients with alcoholic liver disease. *Clinica Chimica Acta* 355: 61-65
- Sillaber I, Henniger M (2004): Stress and alcohol drinking. *Annals of Medicine* 36 (8): 596-605
- Kim Y (2001): Food and nutrition intake in relation to alcohol consumption in the Korean National Health and Nutrition Survey. *J Community Nutrition* 3 (1): 53-58
- Watzl B, Bub A, Briviba K, Rechkemmer G (2002): Acute intake of moderate amounts of red wine or alcohol has no effect on the immune system of healthy men. *European J Nutrition* 41 (6): 264-270
- Kim JW, Jeon WK, Yun JW, Park DI, Cho YK, Sung IK, Park CY, Sohn CI, Kim BI, Kim EJ, Shin MS (2004): Intestinal permeability in patients with viral and alcoholic liver disease. *Korean Society of Gastroenterology* 43 (2): 104-111
- Son SM, Shin NG, Han SH (2004): Nutritional status associated with drinking status in Korean adults (2001 KNHNS). *J Community Nutrition* 6 (2): 61-66
- Eensoo D, Paaver M, Harro M, Harro J (2005): Predicting drunk driving: Contribution of alcohol use and related problems, traffic behaviour, personality and platelet monoamine oxidase (MAO) activity. *Alcohol & Alcoholism* 40 (2): 140-146
- Kim OS (2004): Drinking, smoking self-rated health, and health supplement foods use in adult men. *J of Korean Nurse Science* 16 (1): 1-8
- Lee E (2006): Gender differences in alcohol dependence. *J Korean Med Assoc* 49 (2): 142-149