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Alcohol Addiction and Cognitive Function among Café Visitors at South Jakarta

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Abstract

Background: Alcohol addiction has an acute and chronic impact, and may cause cognitive function impairment, in the form of interference in decision making and impulse control, as well as impaired motor function. Furthermore, research on alcohol addiction and cognitive function has not been widely studied in Indonesia. The purpose of this study was to explore the association between alcohol addiction and cognitive function among café visitors at South Jakarta.

Methods: This was a cross sectional study, conducted among cafévisitors at South Jakarta in 2018. The respondents of this study were individuals who have consumed alcohol in the last 12 months and not consumed narcotics, psychotropic, and other addictive substances except nicotine and caffeine. Alcohol addiction among respondent was assessed by the CAGE questionnaire and cognitive function was assessed by the MoCA-Ina questionnaire. Statistical analysis was determined by Chi Square test.

Results: In total, 80 respondents consisting of 57 men and 23 women met the study criteria, 67.5% of respondents have experienced alcohol addiction and 85.2% have experienced poor cognitive function. There was a strong association between alcohol addiction and cognitive function among café visitors (p=0.000; OR=44.083).

Conclusions: Individual with alcohol addiction has a poor cognitive function compared with people without alcohol addiction. Therefore, awareness of the adverse effects of alcohol addiction on cognitive function among community is needed and thus, people are expected to distance from alcohol addiction.

Keywords: Alcohol addiction, cognitive function, café visitors

Introduction

Alcohol is an addictive substance that can cause dependence if consumed continuously within a certain period of time. Alcohol is very often consumed in western countries.[1] Data from national report on Basic Health Research (*Riset Kesehatan Dasar*, Riskesdas) in 2018 has showed that the most consumed types of alcoholic beverages are traditional drinks and the prevalence of alcohol consumption in the capital city of Indonesia, Jakarta among residents aged 10 years or over is less than 5%. Interestingly, some regencies/municipalities have higher alcohol consumption prevalence compared to the *Daerah Khusus Ibukota* (DKI) Jakarta province, such as North Sulawesi province (16%), followed by East Nusa Tenggara and Bali provinces.[2] Consuming alcohol continuously can cause someone to be addicted to alcohol. According to the World Health Organization (WHO) data in 2010, 1.3% of men and 0.2% of women in Indonesia experience alcohol addiction, with an average of 0.7% for both.[3]

People with alcohol addiction may experience negative health impacts that can be classified as acute and chronic. Long-term alcohol consumption with a large volume of alcohol consumed can increase risk factors for various chronic diseases, such as malignant neoplasms, Diabetes Mellitus, various

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neuropsychiatric disorders, cardiovascular disease, gastrointestinal disease, and many others.[1] Furthermore, excessive alcohol consumption can cause cognitive function to be poor, in the form of disturbances in decision making and impulse control, as well as impaired motor function, such as impaired balance and coordination between hands and eyes. Memory impairment cases can also occur in 10% of non-binge alcohol drinkers, 27% of occasional alcohol drinkers, and 54% of frequent alcohol drinkers. This event occurs at least once in the past year.[4] Poor cognitive function will certainly have an impact on health problems and become a burden of health in Indonesia.

Alcohol addiction may thus serve as one of the risk factors associated with poor cognitive function. Research on alcohol addiction and cognitive function is very rare in Indonesia. The aim of the study was to explore the association between alcohol addiction and cognitive function in individuals who consumed alcohol.

Methods

This study was a cross sectional study, conducted in May–July 2018 and performed among Café visitors at South Jakarta who met the inclusion criteria, by consecutive sampling technique.

The inclusion criteria were café visitors at South Jakarta who had consumed alcohol in the last 12 months, aged over 21 years, could speak Indonesian, and were willing to become respondents by signing an informed consent. Exclusion criteria were visitors who were drunk at the time of the study and had consumed narcotics, psychotropic, and other addictive substances except nicotine and caffeine.

Alcohol addiction was assessed using the CAGE questionnaire. Two or more "yes" answers indicate positive alcohol addiction.[5] Montreal Cognitive Assessment-Indonesian version (MoCA-Ina) questionnaire version 7.1 was used to assess cognitive function. The MoCA-Ina questionnaire assessed 7 cognitive domains from 8 existing cognitive domains, namely visuospatial, naming, attention, language, abstraction, delayed recall, and orientation. The total score of MoCA-Inaquestionnaire was 30 points. Score of >26 indicate good cognitive function.[6]

This study was approved by the Research Ethics Committee Faculty of Medicine and Health Sciences Atma Jaya Catholic University of Indonesia (No: 10/12/KEP-FKUAJ/2017), One-Stop Permit Services Board of South Jakarta with a recommendation letter for research (No. 937/-082.61), and City Health Department of South Jakarta with data collection agreement (No. 5061/-1.777.22).

As for statistical analysis, bivariate analysis was carried out by chi-square test to assess the association between alcohol addiction and the conitive function amongcafé visitorsat South Jakarta. Significant association was designated when results was $p<0.05$. The data was analyzed using IBM SPSS Statistics 23.

Results

In total, there were 98 café visitors who took part in this study, however, only 80 respondents who met the criteria and involved in this study. Most café visitors were in the age group of 21–30 years (71.25%), male (71.3%), unmarried (65%), had the last education of senior high school (46.25%), and followed by bachelor degree (38.25%). Most of them worked as private employees (37.5%) and college students (35%) as shown in Table 1.

The respondents who experienced alcohol addiction answered questions with the most "yes" answers in question number 1 with the cut down acronym as many as 52 (96.3%) respondents (Table 2). This showed that most people who experience alcohol addiction significantly try or feel the need to reduce alcohol consumption, but failed to not consume alcohol again.

The respondents who did not experience alcohol addiction had a higher MoCA-Ina score (Table 3). Furthermore, respondents with alcohol addiction had a mean score below 26 which indicates a decline in cognitive function.

Table 4 showed mean value of each domain in the MoCA-Ina questionnaire. Respondents who experienced alcohol addiction with poor cognitive function had a mean value that was worse in the 7 cognitive domains compared to respondents with good cognitive function. The worst cognitive domain was found in the visuospatial domain with a mean of 2.8 ± 1.258 (56%). Meanwhile, the best cognitive domain was found in the orientation domain with the mean was 6±0 (100%).

The distribution of alcohol addiction and cognitive function among café visitors was depicted in Table 5. The results showed that there were more respondents (67.5%) experienced alcohol addiction than respondents who did not. Moreover, most respondents had poor cognitive function

Table 1 Characteristic among Café Visitors at South Jakarta

Parameters	N	Percentage
Age		
21–30 years	57	71.25
31–40 years	14	17.5
41–50 years	7	8.75
51–60 years	2	2.5
Gender		
Male	57	71.3
Female	23	28.7
Marital status		
Married	28	35
Unmarried	52	65
Last education		
Junior high school	1	1.25
Senior high school	37	46.25
Associate degree	9	11.25
Bachelor degree	31	38.75
Master degree	1	1.25
Doctoral degree	1	1.25
Occupation		
Private employees	30	37.5
Entrepreneur	13	16.25
College student	28	35
Unemployed	2	2.5
Others	7	8.75

(61.2%). There was a significant association between alcohol addiction and cognitive function among café visitors at South Jakarta in 2018 with OR=44.083, indicating that individuals with alcohol addiction hada tendency 44 times higher to have poor cognitive function compared to individuals who were not an alcohol addict.

Discussions

Alcohol consumption is common in the western countries. Currently, alcohol

Table 2 Result of CAGE Questionnaire among Café Visitors with Alcohol Addiction

Alcohol Addiction	CAGE Questionnaire			
	Cut Down	Annoyed	Guilty	Eye Opener
Yes n (%)	52 (96.3)	20 (37)	46 (85.2)	10 (18.5)
No n (%)	2 (3.7)	34 (63)	8 (14.8)	44 (81.5)

Table 3 Mean MoCA-Ina Questionnaire Score among Café Visitors

Alcohol Addiction	MoCA-Ina score (Mean ± SD)
Positive	22.09 ± 2.973
Negative	27.69 ± 1.761

Table 4 Mean Cognitive Function among Café Visitors with Alcohol Addiction Using MoCA-Ina Questionnaire

Domains of the MoCA-Ina Questionnaire, mean ±SD(%)*	Cognitive Function	
	Poor x̄±SD (%)	Good x̄±SD (%)
Visuospatial	2.8 ± 1.258 (56)	4.5 ± 0.756 (90)
Naming	2.78 ± 0.554 (92.67)	3 ± 0 (100)
Attention	4 ± 0.989 (66.67)	5.5 ± 1.069 (91.67)
Language	1.72 ± 0.455 (57.3)	2.13 ± 0.354 (71)
Abstraction	1.13 ± 0.542 (56.5)	1.63 ± 0.518 (81.5)
Delayed Recall	2.91 ± 1.029 (58.2)	3.88 ± 0.835 (77.6)
Orientation	5.74 ± 0.535 (95.67)	6 ± 0 (100)

Note: *Percentage is meanscore in each domain divided with max score in each domain

consumption prevalence is increasing in the big cities in Indonesia, especially among young adult. The WHO's study in 2014 showed that the prevalence of alcohol consumption in Indonesia is 8%, that is lower compared to other countries in Asia.[3] Report of the National Anti-Narcotics Agency (*Badan Narkotika Nasional*, BNN) in 2014 estimated that there was 3.2 million people in Indonesia (1.5% of the total population) who had a history of drug use and of which there were 4.6% consume alcohol.[7]

Our study shows that young adult in the age group 21–30 years (71.25%) are predominantly often attending café as similarly shown in study in the western country.[8] The

Table 5 Association between Alcohol Addiction and Cognitive Function

Alcohol Addiction*	Cognitive Function**		Total (%)	P	Odds Ratio
	Poor n(%)	Good n(%)			
Yes	46 (85.2)	8 (14.8)	54 (67.5)	0.000	44.083
No	3 (11.5)	23 (88.5)	26 (32.5)		
Total (%)	49 (61.2)	31 (38.8)			

Note: * Alcohol addiction as assessed by the CAGE questionnaire, **Cognitive function as assessed by Montreal Cognitive Assessment-Indonesian version (MoCA-Ina) questionnaire version 7.1

higher prevalence inmale visitors (71.3%) who consume alcohol is consistent to other studies, however, in Russia, the prevalence occurs equally between male and female visitors.[9]

Furthermore, study in Malaysia[10] shows that unmarried men visit the café more than those who are married, as also shown in this study. Interestingly, the café visitors had good education ranging from senior high school to bachelor degree, similar to study conducted in the other city in Indonesia.[11] In general, the café visitors are young adult who might seek company, or for business conversation or just a lifestyle event in the big cities.

Based on the results of this study, many the café visitors have poor cognitive function, similar finding as shown in other big city in Indonesia, Yogyakarta.[12]

This study also shows a strong association (p=0.000) between alcohol addiction and cognitive function among café visitors in Jakarta, which is consistent with the research conducted by Sharma et al.[13] in 2017 that shows individuals with alcohol addiction with mean MoCA score 21.50 ±3.33, indicating poor cognitive function (p=0.000). Individual who consume large amounts of alcohol (≥36 grams pure alcohol per day) will experience a decline in cognitive function faster in the next 10 years.[14]

Respondents who experience alcohol addiction have the worst mean value in the visuospatial domain (2.8±1.258), followed by the abstraction domain (1.13±0.542). This is in line with the research conducted by Alarcon et al.[6] by using the MoCA questionnaire to determine the description of cognitive function in individuals with alcohol addiction. There is thus a decrease in the value of the visuospatial domain, attention (list of digits and substraction), language (fluency), abstraction, and delayed recall. The most significant decrease is found in the domain of abstraction and language (fluency).[6]

Consuming large amounts of alcohol can cause deterioration of cognitive function in the domain of memory, attention, visuospatial, and executive functions. Individuals with alcohol addiction will experience changes in gray matter and white matter structures which will cause abnormal brain activity, especially in consuming alcohol since adolescence.[15] This occurs because the gray matter of the brain, the cerebral cortex, limbic system, and cerebellum, experiencing significant neurological development in adolescence. These parts of the brain are a vulnerable part of the effects of alcohol consumption.[16] Alcohol addiction may also cause a decrease in cerebellar volume that can effect a person's cognitive function and motor functions.[17]

Furthermore, individuals with alcohol addiction also show changes in the integrity of the white matter in some parts of the brain, for example in the cortex and subcortex. A prospective study conducted by Bava et al.[18] shows that individuals who consume large amounts of alcohol every day will cause a decrease in white matter integrity in the next 1.5 years, which will cause a decrease in speed in processing new information and communication between regions cortex and it will eventually effect and decrease a person's cognitive function.[18]

Alcohol addiction is a prolonged process consisting of treatment, abstinence, and relapse. Treatment that includes continuing care is needed to reduce the possibility of relapse. Alcohol addiction must be treated immediately to prevent the negative effects of alcohol consumption, one of which is a decrease in cognitive function. Therapy that can be done in initial intensive inpatient or outpatient care based on 12-step principles, followed by continuing care involving self-help groups, 12 step group counseling, or individual therapy.[19] In addition, prevention are also needed to avoid alcohol addiction. Strategies that can be used are conducting screening and brief counseling about adverse effect of alcohol addiction to people at high risk.[20]

The limitation of this study is that this study did not measure other factors that can affect cognitive function in alcohol addiction respondents. These factors include factors that can affect cognitive function such as social support, physical function, cigarette smoking, and coffee intake. Further research is needed to elaborate the other confounding factors.

As a conclusions, our study showed that individual with alcohol addiction has a poor cognitive function. Therefore, awareness among young adult in general and café visitors specifically, need to be raised as the adverse effects of alcohol addiction on cognitive function may hamper the life, therefore, it is advisable to distance themselves from alcohol addiction.

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