

# The Moderating Effect of Social Support on the Impact of Drinking Frequency on Young Adults' Depression: Analysis of Gender Difference

Jang, Si-On<sup>1</sup> | Kim, Do-Hyun<sup>2\*</sup>

<sup>1</sup> Mental Health Research  
Institute, National Center  
for Mental Health

<sup>2</sup> Yonsei University

\* Corresponding author:  
Kim, Do-Hyun  
(zziby159@gmail.com)

## Abstract

Recently in Korean society, there has been an emergence of the 'lowering age of depression risk'. Amid this, drinking is identified as a major factor causing depression, and it has been reported that social support moderates mental health difficulties. Building on previous research that has indicated gender differences in each variable, this study analyzed the impact of young adults' drinking frequency on depression and the moderating effect of social support by gender. The study utilized data from the 'A Survey on the Living Conditions and Welfare Needs of Youths' conducted by the Korea Institute for Health and Social Affairs, using SPSS 25.0 and PROCESS macro 3.4 for analysis. The results showed that females exhibited higher levels of depression and social support compared to males. Furthermore, in the relationship between drinking frequency and depression, the moderating effect of social support was statistically significant only for females. Based on these findings, the study emphasized that address the young adults' drinking and depression problems simultaneously and use social support to solve emotional crisis. Lastly, the study raised the importance of gender-sensitive young adults' mental health policies.

**Keywords:** Young Adults, Drinking Frequency, Depression, Social Support, Gender Difference

## 알기 쉬운 요약

**이 연구는 왜 했을까?** 오늘날 음주는 우울 촉발요인으로 논의되는데 한국 청년층은 타 연령대보다 음주, 우울 수준이 높다. 또한 청년은 사회적 지지를 위기 대처자원으로 활용하는 경향도 크다. 이 가운데 음주, 우울, 사회적 지지 특성 모두 성별에 따라 다르게 나타나기에 음주 빈도와 우울의 관계에서 사회적 지지의 조절효과에 대한 성별 차이 정보를 제공하고자 하였다.

**새롭게 밝혀진 내용은?** 음주 빈도가 높을수록 우울도 높아지며 사회적 지지는 둘의 관계를 조절하였는데, 이러한 영향력은 여성 청년에게서만 유의하다는 성별 차이가 확인되었다.

**앞으로 무엇을 해야 하나?** 국내에 청년을 대상으로 한 알코올 과음 예방사업, 사회적 대인관계 지원 프로그램, 우울 예방 및 정신건강 회복 지원 정책을 활발히 수행해야 할 것이다. 이때 모든 실천적, 정책적 개입 과정에는 성별을 고려한 맞춤형 노력을 기울일 필요가 있다.

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## I . Introduction

In contemporary Korean society, there is a growing concern surrounding mental disorders, with a particular emphasis on 'Depression'. According to the DSM-5, depression is defined as a mental disorder characterized by a persistent feeling of sadness due to the loss of enthusiasm, pleasure, and energy. It is highlighted that in modern society, exposure to negative life events and elevated stress levels frequently increases the risk of depression([American Psychiatric Association, 2015](#)).

In the midst of this, there is required for deeper attention to the young adults' depression issue. This is due to the prominent trend of 'Depression risk groups getting younger' in recent Korean society. Many surveys measuring the mental health levels of the nation consistently report a paradigm where the prevalence of depression experiences is higher in young adults compared to other age groups. For example, [Statistical Korea\(2023\)](#) analyzed the state of feeling of depression in daily life using the "Social Survey", and found that the rate of feeling of depression in their 20s is 53.7% and 63.6% in their 30s, young adults feel about 5~30% higher depression than other age groups. Also, the [Ministry of Health and Welfare\(2020\)](#)'s "National Mental Health Survey 2020" revealed statistical evidence, ranking the levels of depression among individuals in their 20s and 30s as the first and second-highest across all age groups, meaning the high mental health vulnerability of the young adults. Additionally, an analysis of the "Status of Depression and Anxiety Disorders in the Last Five Years" data by the [Health Insurance Review & Assessment Service\(2022\)](#) indicated a noteworthy shift in the frequency of depression patients across age groups. In the initial survey year of 2017, patients in their 20s ranked lower in frequency, but in 2020, they surpassed the numbers for individuals aged 50-70, reporting the highest frequency of depression patients. These data points underscore the severity of the issue of depression among young adults compared to other age groups. So, there is a pressing need for Korean society to delve deeply into the young adults' depression issue from various perspectives. Active policy discussions and social discourse related to this matter are crucially required.

Generally, all mental disorders arise from personal and environmental factors([Oh, Yu, Lee & Kang, 2021](#); [Im, 2021](#)). Today, there is a growing discussion about 'Alcohol consumption' as a precipitating factor for mental health problems. This is explained by the principle that mental disorders worsen due to dysfunctional and repetitive alcohol consumption([Park, 2021](#)). Particularly noteworthy is the higher alcohol consumption rate among Korean young adults compared to other age groups, prompting academia and practical fields to pay attention to the issue of young adults' alcohol consumption. According to the analysis of the annual alcohol consumption rates by age group in the "Korea National Health and Nutrition Examination Survey" conducted by the [Korea Disease Control and Prevention Agency\(2021\)](#), the alcohol consumption rate among the young adults category, especially those aged 19-29, is 88.6%, and for those aged 30-39, it is 84.7%, ranking first and second

across all age groups. This trend has consistently been observed from the initial disclosure in 2005 until 2021. The escalating issue of young adults' alcohol consumption is no longer just an individual problem but requires a societal approach. Young adults, compared to other age groups, have a significant impact on national spending related to health behaviors, and frequent alcohol consumption directly leads to physical and mental health problems caused by the toxicity of alcohol, resulting in social and economic costs(Lee & moon, 2018). Thus, in the fields of social welfare and public health, it is essential to recognize that reckless drinking frequency among young adults not only contributes to behavioral problems but can also have adverse effects on their mental health, leading to the need for targeted interventions.

Meanwhile, according to previous research, the exchange of 'Social support' between individuals has been demonstrated to significantly regulate mental health levels. Social support, described from a 'Relational perspective', regulates mental health through interactions across various collectives such as individuals, groups, organizations, and society at micro, meso, and macro levels(Yeom & Han, 2022). This suggests that when individuals facing difficulties receive material or immaterial support from their surroundings, they exhibit greater resilience to overcome crises by actively utilizing those resources, even when experiencing negative events, the buffering effect of social support can lower the level of mental health problems(Park & Bae, 2016; Fiori, Antonucci & Cortina, 2006). Amidst this, the youth generation often faces multidimensional challenges compared to other age groups and they tend to actively leverage social support from personal connections and the social environment during coping processes(Joo, 2020). Considering this tendency, it is predicted that social support may have a positive impact on overcoming mental health issues associated with young adults' alcohol consumption. So, there is a need to analyze whether social support exerts a regulatory effect on the relationship between young adults' drinking frequency and depression, and to explore the differences in the impact of drinking frequency and depression based on the level of social support.

The characteristics of drinking frequency, depression, and social support exhibit gender differences. For instance, according to the analysis of monthly binge drinking rates by gender in the "Korea National Health and Nutrition Examination Survey" conducted by the [Korea Disease Control and Prevention Agency\(2021\)](#), men showed a higher binge drinking rate at 47.0%, compared to women at 24.1%. Additionally, the "Mental Health Status Survey 2021" by the [Ministry of Health and Welfare\(2021\)](#) revealed a gender difference in the lifetime prevalence of depressive disorders, with men at 5.7% and women at 9.8%, indicating higher rates among women. A study by [Jeon\(2014\)](#) comparing the patterns of depression in adult men and women found that women's levels of depression were twice as high as those of men. Men tended to have lower levels of depression from the beginning, either maintaining a consistently low level or showing minimal changes over time. In contrast, women exhibited consistently higher levels of depression from the outset, stabilizing at a mid-level or rapidly increasing. Similarly, the nature of support exchanged between individuals varies by gender.

Previous research has presented conflicting results regarding the impact of social support on mental health based on gender, with some studies suggesting a greater influence on women than men (Park, 2011; Yeom & Han, 2022). So, examining the phenomena of the gender difference in the relationship between drinking frequency and depression, the moderating effect of social support in these relationships, holds significant academic importance.

Previous researches have continued to study young adults' depression, but there were investigated drinking frequency and depression, social support and depression separately, lacking comprehensive domestic research on the moderating effect of social support on the relationship between drinking frequency and depression. Also, although drinking frequency, social support, and depression all differ by gender, researches that studied gender differences in these relationships have been scarce. This means that as the interaction information of drinking frequency and social support that affects young adults' depression, and difference information of the relationship between drinking frequency, depression, and social support by gender were insufficient in the existing research sites, a new study is needed. So, based on the 'Toxicology hypothesis' claimed that the pharmacological effects of alcohol cause mental illness, this study will analyze gender difference in the impact of drinking frequency of young adults on depression and the moderating effect of social support in this relationship.

Based on the above research objectives, the research questions to investigate are as follows:

**Research Question 1: Does drinking frequency influence depression in young adults?**

**Research Question 2: Does social support moderate the relationship between drinking frequency and depression in young women?**

**Research Question 3: Does social support moderate the relationship between drinking frequency and depression in young men?**

**Research Question 4: Are there gender differences in the relationship between drinking frequency and depression, and the moderating effect of social support?**

## II. Literature review

### 1. Toxicology hypothesis theory

In many previous studies, the relationship between alcohol consumption and depression has been explained based on the 'Toxicity hypothesis theory' proposed by Kessler & Price (1993). This theory suggests that excessive or prolonged alcohol consumption leads to the strong toxicity of the alcohol component in the brain cells, causing a deterioration in brain function and mental disorders such as depression (Kessler & Price, 1993). In other words, the unique drug effects of ethanol in alcoholic beverages induce emotional problems, leading to feelings of depression in drinkers. This perspective contrasts with Conger (1956)'s 'Tension reduction hypothesis' and Khantzian (1987)'s 'Self-medication

theory', which propose that individuals use alcohol to alleviate depressive feelings. Unlike these theories that suggest depression as a precursor to alcohol consumption, the Toxicity hypothesis theory emphasizes the point that alcohol consumption triggers depression (Lee & Choi, 2022). This theory is significant in that it views an individual's "Drinking behavior" not merely as a responsive mechanism to alleviate depression arising from stressful situations but rather as a perspective that considers distorted behavioral issues generated in the process of coping with stress as the 'Cause' of depression (Kang & Kwon, 2008; Park, 2021).

Kessler & Price (1993) proposed the Toxicity hypothesis theory, outlining the mechanisms through which alcohol induces depressive symptoms, known as 'Direct induction' and 'Indirect induction'. 'Direct induction' suggests that negative components present in ethanol directly affect the body, leading to the onset of depression, on the other hand, 'Indirect induction' defines incidents, thoughts, and behavioral issues resulting from alcohol consumption at addiction levels as causing depression (Kessler & Price, 1993). In this regard, this theory implies that excessive alcohol consumption has various direct and indirect adverse effects throughout an individual's life cycle. At once, these adverse effects act as mediating factors, ultimately inducing experiences of mental disorders such as depression.

Approaching the Toxicity hypothesis theory in the context of young adults' alcohol consumption and depression, it can be explained that, since young adults tend to have higher alcohol consumption levels and frequencies than other age groups, prolonged episodes of binge drinking can elevate the risk of mental health issues due to alcohol toxicity, leading to depression (Lee & Moon, 2018; Danzo, Connell & Stormshak, 2017). Excessive drinking beyond moderate levels can directly harm physical health due to the ethanol content or indirectly cause psychological vulnerability and emotional distress through behavioral issues and negative life events resulting from alcohol addiction, establishing a strong correlation with young adults' depression (Park, 2021). Therefore, it is pertinent to explore the relationship between young adults' drinking frequency and depression in depth by applying the Toxicity hypothesis theory.

## 2. Drinking frequency and depression

Alcohol consumption behavior is commonly classified into two categories. The first is 'Moderate drinking', that the amount of alcohol consumed does not exceed appropriate levels, and it contributes to maintaining interpersonal relationships and enhancing social vitality (Lee, 2013). The second is 'Risky drinking', which goes beyond moderate levels and is linked to secondary harms such as depression, major accidents, and even death (Ko & Jung, 2018). Particularly, risky drinking has been focused as a serious societal issue.

In some circles within the mental health academic community, based on [Lazarus & Folkman\(1984\)](#)'s 'Stress coping theory', it is argued that drinking alcohol can help alleviate stress by facilitating the expression of negative emotions due to the effects of alcohol([Jung & Lee, 2020](#)). However, in the long term, repetitive drinking for stress relief can lead to serious physiological and behavioral problems, such as alcohol dependence and task non-compliance, turning into more significant stressors and increasing vulnerability to depression([Lee & Lee, 2020](#); [Park, 2021](#)). Moreover, chronic misuse of alcohol can lead to the development of negative traits, including increased aggression, impulsivity, and anger, ultimately, there is a risk that alcohol dependence issues may transform into affective disorders such as depression([Choi & Lee, 2016](#)). Excessive drinking behavior is thus indicated as a significant predictor of increased depression.

Previous research indicates that drinking frequency has an impact on the exacerbation of depression. In a study by [Lee & Lee\(2007\)](#) that explored the influence of alcohol consumption on depression in adult drinkers, it found that as the amount of alcohol consumed increased, the tendency toward depression also increased. In particular, they argued that reducing drinking frequency and proper stress management due to alcohol-induced stress were necessary for decreasing depression. This finding, that higher drinking frequency is associated with higher levels of depression, is supported by studies such as those by [Baik\(2011\)](#), [Park, Jun & Sohn\(2015\)](#), and [Lee & Choi\(2022\)](#). In a study by [Lee & Choi\(2022\)](#) investigating the relationship between alcohol consumption and depression in middle-aged individuals, it was found that higher levels of alcohol dependence, as defined by the 'Alcohol Use Disorders Identification Test: AUDIT scale', and more frequent risky drinking were associated with increased alcohol-related problems and higher levels of depression. International studies, including [Holway, Umberson & Thomeer\(2017\)](#), [McHugh & Weiss\(2019\)](#), and [Li et al. \(2020\)](#), have also demonstrated a positive relationship between drinking frequency and the risk of depression. [Li et al.\(2020\)](#) conducted a meta-analysis cohort study on the association between drinking frequency and depression, finding that alcohol uses disorder-level drinking consistently increased the risk of depression. [McHugh & Weiss\(2019\)](#), exploring the pathways of alcohol use disorder and depression, asserted that alcohol consumption physiologically influences depression and emphasized the need for treatment studies for alcohol abuse and efforts to address public health issues related to alcohol consumption to resolve depression.

The impact of drinking frequency on depression varies based on gender, with effects being observed differently in specific genders, sometimes being significant in only one gender or demonstrating a more dominant influence in certain genders. For example, a study by [Jang & Lee\(2021\)](#), analyzing the difference in depression levels between alcohol and non-alcohol consumers among self-employed workers based on gender, found that the difference in depression levels was not significant in men. However, among women, the alcohol consumer group experienced more depression compared to the non-alcohol consumer group, suggesting that the impact of alcohol on depression is evident only in

women. Other both domestic and international studies, such as [Choi & Lee\(2016\)](#), [Lee & Lee\(2020\)](#), [Yue et al.\(2015\)](#), [Danzo, Connell & Stormshak\(2017\)](#), have reported that when depression occurs due to alcohol consumption, the influence tends to be more significant in women than in man. [Yue et al.\(2015\)](#) specifically highlighted that the influence of alcohol on depression risk is more prominent in women, with a 2.3% impact for women compared to a 1.7% impact for men. On the contrary, some studies suggest the impact of alcohol on depression is more significant in men([Baik, 2011](#); [Kim, Kang & Mun, 2013](#)), or have found that alcohol consumption has a more pronounced positive effect on depression in men compared to women([Gweon & Sung, 2010](#); [Park, Jun & Sohn, 2015](#)). [Park, Jun & Sohn\(2015\)](#) specifically explored the gender differences in alcohol consumption types and depression among adults, revealing that men, with a more diverse and detailed high-risk alcohol consumption pattern, have a higher vulnerability to depression caused by alcohol consumption than women.

### 3. Social support and depression

Social support is the material and immaterial resources that individuals exchange and share with diverse members of society to pursue a healthy social life([Jang, Kim, Heo, Jung & Noh, 2022](#)). It encompasses various forms such as emotional support, material support, informational support, and evaluative support, aiding in resolving the diverse problems and needs individuals encounter in life([Paik, 2010](#); [Yeom & Han, 2022](#)). Moreover, social support contributes to enhancing an individual's emotional control and mitigating psychological crises by assisting in overcoming difficulties through the use of received resources([Park, 2011](#)). In essence, it functions to minimize stress arising from personal life issues, maintain psychological and emotional stability, and alleviate maladaptive responses to mental health challenges([Park & Bae, 2016](#); [Fiori, Antonucci & Cortina, 2006](#)). In this regard, social support implies its role as a protective factor in reducing vulnerability to depression.

According to prior research, social support has been revealed to have a buffering effect on depression by having a negative relationship with depression. The study by [Park & Bae\(2016\)](#) shows that higher social support density and diverse types of received support are associated with lower levels of depression. This suggests that individuals who experience more support from their surroundings are more likely to feel a sense of cohesion and belongingness within society, leading to a higher likelihood of alleviating depression. Similar findings were reported in studies by [Kang, Kim & Chung\(2015\)](#) and [Yeom & Han\(2022\)](#), emphasizing that a decrease in depression is related to receiving more social support. Especially, the research by [Yeom & Han\(2022\)](#), which explored the impact of social support on depression among young adults, classified social relationships into family, friends, and meaningful others according to [Zimet's Social support scale\(1988\)](#). The analysis revealed that higher levels of social support were associated with lower levels of depression, with family support having the most significant impact. International studies, including [Domènech-Abella et al.](#)



(2017), who found the relationship between social support and depression in 50 Spanish elderly individuals, also identified a negative relationship between social support and depression. These studies concluded that people who perceive their social support as limited or with smaller support networks are more likely to experience higher levels of depression.

The relationship between social support and depression appears to vary by gender. In a study by Jun(2012) exploring the buffering effect of social support on the relationship between college students' life stress and depression, it was found that the mitigating effect of social support on depression was significant only for females. Paik(2010), analyzing the impact of social support experiences on psychological health in elderly men and women, found that women experienced a decrease in the risk of mental disorders such as depression when receiving social support. Whereas, some studies suggested that when the impact of social support on depression is observed in both genders, the effect is more pronounced in females(Park & Bae, 2016; Yeom & Han, 2022; Jang, Kim, Heo, Jung & Noh, 2022; Fredrick, Demaray, Malecki & Dorio, 2018). For women, as the frequency of social interactions increases, and the size and types of social support expand, the alleviating effect on depression becomes more significant, especially when receiving emotional support among the four major types of social support(Paik, 2010; Yeom & Han, 2022).

Based on the previous studies review, it can be hypothesized that "Drinking frequency affects young adults' depression, and social support moderates the relationship between the two variables, with effects varying by gender". Therefore, this study aims to investigate the impact of drinking frequency on young adults' depression, examine the moderating effect of social support, and explore gender differences in these relationships.

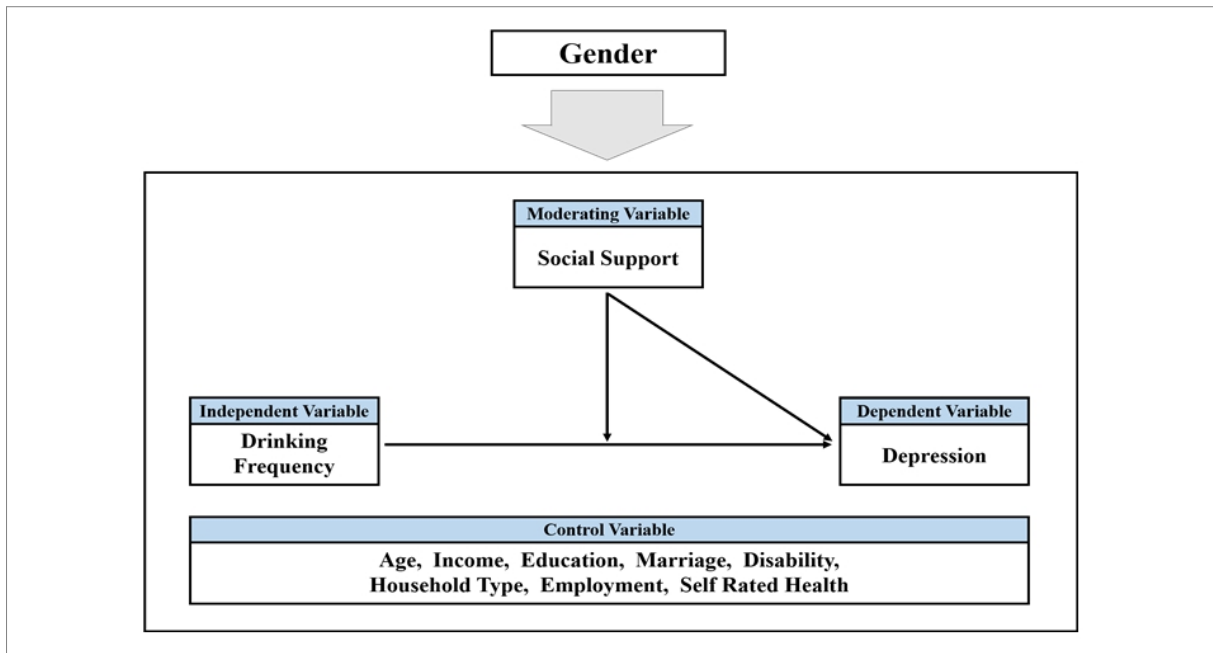
### III. Method

#### 1. Research model

[Figure 1] represents the research model of this study. Depression is set as the dependent variable, drinking frequency as the independent variable. Social support is included as a moderating variable, and control variables such as age, income, education, marriage, disability, household type, employment, and self rated health are also incorporated. This research model assumes that drinking frequency, social support, and control variables positively or negatively influence the levels of depression in females and males, and these factors exhibit differences between women and men.



Figure 1. Research model



## 2. Data source

This study utilized data from the "A Survey on the Living Conditions and Welfare Needs of Youths" conducted by the Korea Institute for Health and Social Affairs from November 2019 to January 2020 as the primary analytical material. This survey is distinctive in its ability to provide a detailed understanding of the overall lives of young adults in terms of their conditions and needs. Moreover, this survey was designed for young adults, with main purpose of serving as foundational data for the development of social policies for the young adults. The survey on the living conditions and welfare needs of young adults was conducted based on the 2018 Population and Housing Census using statistical districts by Statistical Korea to extract samples. A total of 300 statistical districts were surveyed, investigating an average of 10 households each, resulting in a complete survey of 3,018 individuals. In the "Basic Act for Young People", the age criteria for young adults are defined as 19 years and above up to 34 years. Therefore, this study targeted participants from the young adult population aged 19 to 34 who participated in 'A Survey on the Living Conditions and Welfare Needs of Youths'. The research was conducted based on a total of 3,018 survey participants.

### 3. Measure

#### 1) Drinking frequency

The independent variable in this study is 'Drinking frequency', measured as a single item in the "A Survey on the Living Conditions and Welfare Needs of Youths". In this survey, it was measured by the frequency of drinking soju and beer in a month. The options were categorized as follows: ① 'Less than once a month', ② 'About once a month', ③ 'About 2-3 times a month', ④ 'About once a week', ⑤ 'About 2-3 times a week', and ⑥ 'Almost every day'. In this study, drinking frequency was measured, ranging from less than once a month to almost every day, depending on the measurement criteria.

#### 2) Depression

The dependent variable in this study is 'Depression', and for the measurement of depression in the "A Survey on the Living Conditions and Welfare Needs of Youths", a questionnaire was utilized. This questionnaire, based on the CES-D scale, consists of 11 items on a 4-point scale following the precedent of the Korean Welfare Panel Study. The CES-D scale is commonly used as a measure of depressive symptoms(Sin & Yeo, 2009). The items, originally ranging from 1 to 4 points, were recoded to a 0-3 point scale in this study. Two items measuring positive emotions('Lived relatively well' and 'Lived without significant complaints') were reverse-coded. The Cronbach's alpha value was confirmed to be .885, indicating good internal reliability.

#### 3) Social support

The control variable in this study, 'Social support', was measured using the Multidimensional Scale of Perceived Social Support(MSPSS), developed by Zimet, Dahlem, Zimet & Farley(1988). This scale consists of 12 items assessing subjective perceptions of social support. The items are as follows: ① 'There is someone who will help me when I am in need', ② 'I have people with whom I can share my joys and sorrows', ③ 'My family really tries to help me', ④ 'I get the emotional help and support I need from my family', ⑤ 'There is someone who really cares about me', ⑥ 'My friends really try to help me', ⑦ 'I can rely on my friends when things go wrong', ⑧ 'I can talk about my problems with my family', ⑨ 'I have friends with whom I can share my joys and sorrows', ⑩ 'There is someone who takes care of me', ⑪ 'My family is willing to help me make decisions', ⑫ 'I can talk about my problems with my friends'. Responses are recorded on a 7-point Likert scale ranging from 'Not at all true(1-point)' to 'Very true(7-point)', where higher scores indicate a higher subjective perception of social support. The Cronbach's alpha value was .947, confirming good internal reliability.

#### 4) Control variable

In this study, control variables were selected based on previous research that identified factors influencing depression. The control variables included age, income, education, marriage, disability, household type, employment, and self-rated health. Studies focusing on Korean adults have reported associations between age and depression (Kim, 2009). Additionally, income has been identified as a factor influencing depression based on economic factors related to different income levels (Sung, 2010). Education, marriage, disability, and self-rated health have also been found to be associated with depression (Park & Lee, 2011; Jung, 2014; Kye, 2015). Household type, such as living alone in a one-person household, has been linked to depression as well (Song, 2020). Furthermore, employment was identified as a variable influencing depression among young adults (Song, Lee & Jeong, 2019).

Age was measured as a continuous variable, while income was utilized in units of 1 million won based on the survey conducted in this study. For education, it was dummy-coded as '0=High school or below' and '1=University or Higher'. Self-rated health was measured on a 5-point scale ranging from 'Very Bad' to 'Very Good'. In this survey, marriage and household type were categorized as 'Young Couples', 'Living with Parents', and 'Independent Youth'. There were no items related to divorce or separation. Marriage was dummy-coded as '0=Single' and '1=Married' based on whether the respondent was married or not. Household type was dummy-coded as '0=Multi Person Household' and '1=Single Person Household' based on whether the household consisted of one person or more. Additionally, marriage, disability, and employment were dummy-coded as '0=None' and '1=Yes' based on the respective conditions.

#### 4. Data analysis

This study utilized SPSS 25 and PROCESS macro 3.4 for the analysis. The analytical methods included frequency analysis, descriptive statistics, chi-square tests, independent samples t-tests, correlation analysis, stepwise multiple linear regression analysis, examination of the significance of moderation effects using the Johnson-Neyman method, and validation of conditional effects.

### IV. Results

#### 1. Demographic characteristics by gender

The demographic characteristics of the study participants are presented in <Table 1>. Out of the total 3,018 individuals, 1,446 were females (47.9%), and 1,572 were males (52.1%), indicating a slightly higher representation of males.

Table 1. Demographic characteristics by gender

(Measure: n, %)

Variables	Categories	Female (n=1,446)		Male (n=1,572)		χ <sup>2</sup> /t
		n	%	n	%	
Income	Less than 100	35	2.4	48	3.1	5.455
	More than 100 less than 200	141	9.8	142	9.0	
	More than 200 less than 300	199	13.8	250	15.9	
	More than 300 less than 400	205	14.2	229	14.6	
	More than 400 less than 500	238	16.5	235	14.9	
	More than 500 less than 600	240	16.6	246	15.6	
	More than 600 less than 700	167	11.5	184	11.7	
	More than 700	221	15.3	238	15.1	
Education	High School or Below	214	14.8	327	20.8	18.443***
	University or Higher	1,232	85.2	1,245	79.2	
Marriage	Married	245	16.9	173	11.0	22.259***
	Single	1,201	83.1	1,399	89.0	
Disability	Have a Disability	20	1.4	24	1.5	.108
	No Disability	1,426	98.6	1,548	98.5	
Household Type	Single Person Household	319	22.1	442	28.1	14.650***
	Multi Person Household	1,127	77.9	1,130	71.9	
Employment	Working	870	60.2	1,004	63.9	4.385*
	Not Working	576	39.8	568	36.1	
Age 26.45(4.482)	Female	26.48(4.603)				.399
	Male	26.42(4.369)				
Self Rated Health 4.26(0.686)	Female	4.19(0.684)				-5.649***
	Male	4.33(0.681)				

Note: \* p<.05, \*\* p<.01, \*\*\* p<.001

For females, income showed a relatively even distribution across different income brackets, ranging from 11.5% to 16.6%. Regarding education, 1,232 individuals(85.2%) had graduated from university or higher, indicating more than those with a high school or below. Marriage revealed that the majority of participants were single, with 1,201 individuals(83.1%) reporting as such. The majority of females reported no disability, with 1,426 individuals(98.6%). In terms of household type, multi person households were predominant, constituting 1,127 individuals(77.9%). Among females, 870 individuals(60.2%) were employed. When asked about self rated health, 841 individuals(58.2%) responded with "Good", and 460 individuals(31.8%) responded with "Very good", indicating a generally positive perception of health among the participants.

For males, income distribution across different brackets, ranging from 11.7% to 15.9%, displayed a pattern similar to that of females, in the 2,000,000 to 3,000,000 won and 7,000,000 won and above brackets. In Education, 1,245 males(79.2%) had graduated from university. Marriage showed that the majority were single, with 1,399 individuals(89.0%) reporting as such. The vast majority reported no disability, with 1,548 individuals(98.5%). Household type indicated that the majority lived in multi person households, constituting 1,130 individuals(71.9%). Among males, 1,004 individu-

als(63.9%) were employed. Regarding self rated health, 91.0% of male participants responded positively, similar to the pattern observed in females.

When examining demographic characteristics by gender, categorical variables showed significant differences based on gender in terms of education( $\chi^2 = 18.443$ ,  $p < .001$ ), marriage( $\chi^2 = 22.259$ ,  $p < .001$ ), household type( $\chi^2 = 14.650$ ,  $p < .001$ ), and employment( $\chi^2 = 4.385$ ,  $p < .05$ ). In the group with university or higher, males showed a higher educational level compared to females, and the proportion of married was higher among females. Single person households and current employment status(working) were more prevalent among males. Analyzing continuous variables, significant gender differences were found in self rated health( $t = -5.649$ ,  $p < .001$ ). Males had a higher self rated health(Mean=4.33, SD=0.681) compared to females.

## 2. Descriptive statistics of depression and major variables

The descriptive statistics for the dependent variable, 'Depression', the independent variable, 'Drinking frequency', and the control variable, 'Social support', are presented in (Table 2). For the entire sample, the mean depression score was 6.09(SD=4.45), the mean drinking frequency was 2.46(SD=1.34), and the mean social support was 66.4(SD=10.61). When examining gender differences, among females, the mean depression score was higher at 6.69(SD=4.51), indicating a relatively more vulnerable mental health status compared to males. Additionally, females reported a higher level of social support, with a mean of 67.0(SD=10.12), compared to males. While males showed a higher level of drinking frequency with a mean of 2.75(SD=1.35) compared to females.

**Table 2.** Descriptive statistics of depression and major variables

Total (N=3,018)				
	Mean	SD	Min	Max
Drinking Frequency	2.46	1.34	1	6
Social Support	66.4	10.61	12	84
Depression	6.09	4.45	0	33
Female (N=1,446)				
	Mean	SD	Min	Max
Drinking Frequency	2.16	1.25	1	6
Social Support	67.0	10.12	24	84
Depression	6.69	4.51	0	33
Male (N=1,572)				
	Mean	SD	Min	Max
Drinking Frequency	2.75	1.35	1	6
Social Support	65.8	11.02	12	84
Depression	5.57	4.37	0	33

### 3. Differences between gender groups in drinking frequency, social support, depression

The results of the analysis of differences between male and female groups in terms of drinking frequency, social support, and depression are presented in <Table 3>. The independent samples t-tests were conducted to examine the differences in key variables between the female and male groups. Social support and depression levels were higher in females than males, while drinking frequency was higher in males than females. drinking frequency( $t=-12.593, p<.001$ ), social support( $t=2.808, p<.001$ ), and depression( $t=3.287, p<.001$ ) all showed statistically significant differences between the female and male groups.

**Table 3.** Differences between gender groups in drinking frequency, social support, depression

	Female (n=1,446)		Male (n=1,572)		t
	Mean	SD	Mean	SD	
Drinking Frequency	2.16	1.25	2.75	1.35	-12.493***
Social Support	67.0	10.12	65.8	11.02	2.808***
Depression	6.69	4.51	5.57	4.37	3.287***

Note: \*  $p<.05$ , \*\*  $p<.01$ , \*\*\*  $p<.001$

### 4. Correlation between variables

The results in <Table 4> depict the correlation between variables. A Pearson correlation analysis was conducted among the ordinal and continuous variables included in the research model. Among them, the key variables of drinking frequency and depression showed a positive correlation of .041. Additionally, social support and depression exhibited a negative correlation of  $-.323$ . There was no evidence of multicollinearity issues with the main variables.

**Table 4.** Correlation between variables

	1	2	3	4	5	6
1	1					
2	.001	1				
3	-.039*	.085**	1			
4	.011	.011	.018	1		
5	-.033	.123**	.146**	.036*	1	
6	.043	-.123**	-.0258	.041*	-.323**	1

Note: 1) \*  $p<.05$ , \*\*  $p<.01$

2) 1. Age, 2. Income, 3. Self Rated Health, 4. Drinking Frequency, 5. Social Support, 6. Depression

### 5. The moderating effect of social support between drinking frequency and depression

To examine the moderating effect of social support on the relationship between drinking frequency and depression, mean centering was performed on the independent variable and the moderator vari-

able. Subsequently, analysis was conducted using [Hayes\(2017\)](#) Process Macro Model 1. Detailed results can be found in [Table 5](#).

**Table 5.** The moderating effect of social support between drinking frequency and depression

Variable	Male		Female	
	$\beta$	S.E	$\beta$	S.E
Constant Variable	24.290	1.590	24.895	1.622
Age	.051	.029	.045	.027
Income	.138	.067	-.109	.077
Education	-.114	.265	.054	.308
Marriage	-.586	.386	.092	.330
Disability	.369	.853	.087	.916
Household Type	.208	.326	.395	.373
Employment	-.306	.263	-.230	.243
Self Rated Health	-.108***	.306	-.817***	.275
Drinking Frequency	.213	.455	.659**	.555
Social Support	-.107***	.019	-.096***	.020
Drinking Frequency $\times$ Social Support	-.001	.007	-.018**	.008
R <sup>2</sup>	.138		.202	
$\Delta$ R <sup>2</sup>			.030**	
F	22.649***		33.064***	

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

The results of the moderation analysis for young males, after differentiating the model by gender, are as follows. The explanatory power for the dependent variable, depression, was 13.8% ( $R^2 = .138$ ), indicating that the research model was appropriate ( $F=22.649$ ,  $p < .001$ ). The analysis revealed that the control variable, self rated health, had a significant impact on depression ( $\beta = -.108$ ,  $p < .001$ ). In other words, lower self rated health was associated with higher levels of depression. However, the other control variables did not show a significant impact on depression. The independent variable, drinking frequency, did not have an impact on depression. In contrast, the moderating variable, social support, exhibited a significant effect on depression ( $\beta = -.107$ ,  $p < .001$ ). This implies that as the level of social support decreases, the level of depression tends to increase. The interaction term 'Drinking Frequency  $\times$  Social Support', like the independent variable drinking frequency, was not significant. So, for young males, there was no moderating effect in this model.

Next, the results of the moderation analysis for young females are as follows. The explanatory power for the dependent variable, depression, was 20.2% ( $R^2 = .202$ ), indicating that the research model was appropriate ( $F=33.064$ ,  $p < .001$ ). This suggests a higher explanatory power compared to the model for males. The analysis revealed that similar to males, the control variable, self rated health, had a significant impact on depression ( $\beta = -.817$ ,  $p < .001$ ). In other words, lower self rated health was associated with higher levels of depression. However, like in the male group, the other control variables did not show a significant impact on depression. The independent variable, drinking



frequency ( $\beta = .659, p < .01$ ), and the moderating variable, social support ( $\beta = -.096, p < .001$ ), both exhibited a significant impact on depression. This implies that higher drinking frequency and lower social support are associated with higher levels of depression. The interaction term 'Drinking Frequency  $\times$  Social Support' was also significant ( $\beta = -.018, p < .01$ ), indicating a moderating effect of social support on the relationship between drinking frequency and depression. Thus, the impact of drinking frequency on depression was found to vary depending on the level of social support. The increase in  $R^2$  due to the addition of the interaction term was  $.030 (p < .001)$ , confirming the significant moderating effect of social support.

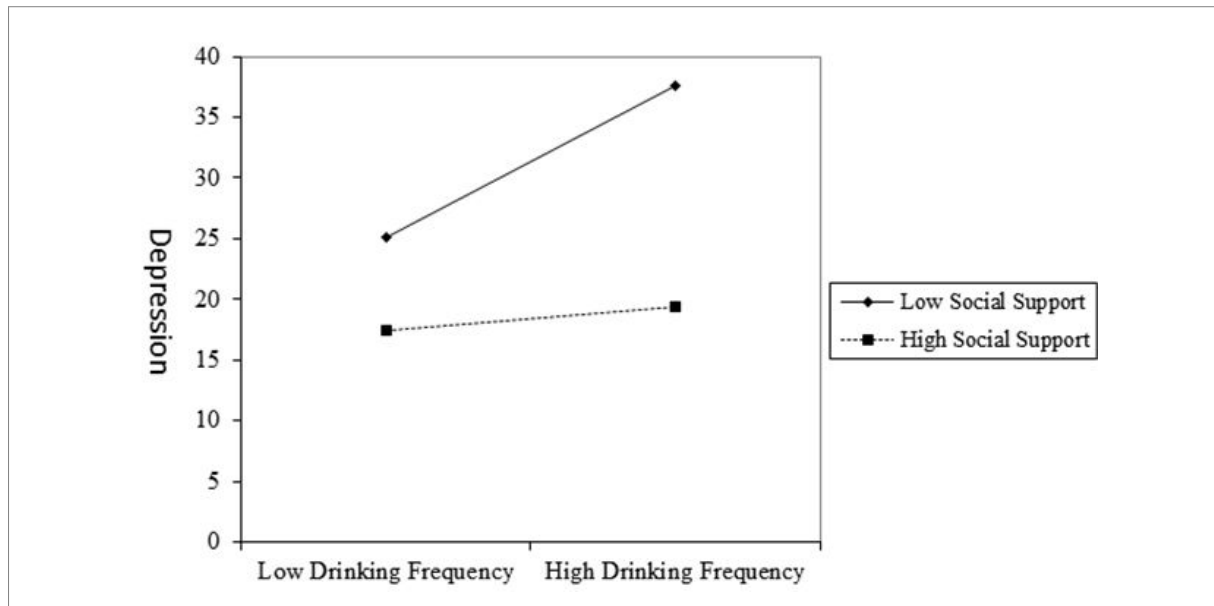
The significance region of the moderation effect of drinking frequency on depression concerning the entire range of the moderating variable, as assessed by the Johnson-Neyman method, revealed that, for young females, the impact of drinking frequency on depression was significant in areas where the level of social support was below 78.0714 and not significant in areas where it was above 78.0714. This implies that the relationship between drinking frequency and depression becomes insignificant when the level of social support is 78.0714 or higher. This significant effect was observed in 85.5% of the total participants, indicating that for the remaining 14.5%, the effect was not significant. This suggests that at very high levels of social support, the impact becomes negligible. The conditional effects of drinking frequency on depression at specific values of social support for young females are presented in <Table 6>. The analysis results showed that the effect was significant in all groups: those with lower-than-average social support ( $M-1SD$ ), those with average social support ( $M$ ), and those with higher-than-average social support ( $M+1SD$ ). In other words, when social support is low, average, or high, the impact of drinking frequency on depression is significant.

**Table 6.** Conditional effect of social support on the effect of drinking frequency on depression

Social Support	$\beta$	S.E	95% CI	
			LLCI	ULCI
-1SD	.627***	.123	.386	.868
M	.443***	.088	.271	.615
+1SD	.259*	.117	.029	.489

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Finally, the illustration of the moderating effect of social support on the impact of drinking frequency on depression in young females is presented in [Figure 2]. The regression equation based on the research results is 'Y = 24.8953 + 1.6589X + 0.0963M + 0.0182XM'. In groups with low social support, it was observed that as the drinking frequency of young females increased compared to the high social support group, the level of depression also increased. This confirms the moderating effect of social support on the impact of drinking frequency on depression in young females.

**Figure 2.** Graph of the moderating effect of social support (Female)

## V. Discussions

This study aimed to examine the moderating effect of social support on the relationship between drinking frequency and depression among young adults aged 19 to 34, using "A Survey on the Living Conditions and Welfare Needs of Youths" data by the [Korea Institute for Health and Social Affairs\(2020\)](#). The main findings can be summarized as follows:

Firstly, for research question 1, "Does drinking frequency influence depression in young adults?" a significant positive relationship was observed, indicating that higher drinking frequency increased depression. This finding aligns with previous studies by [Park\(2021\)](#), [Lee & Choi\(2022\)](#), [Li et al.\(2020\)](#), which suggested that alcohol consumption leads to negative physical changes and secondary behavioral issues, resulting in mental health disorders such as depression. Moreover, these results are consistent with the [Kessler & Price\(1993\)](#)'s toxic hypothesis theory, proposing that the pharmacological effects of alcohol consumed can trigger cognitive impairment and emotional maladaptation, leading to mental health issues.

Secondly, regarding research question 2, "Does social support moderate the relationship between drinking frequency and depression in young women?" the moderating effect of social support on the impact of drinking frequency on depression was found to be significant. Furthermore, it was observed that when the moderating effect occurs, lower levels of social support are associated with an increase in depression. This supports previous research by [Kang, Kim & Chung\(2015\)](#), [Yeom & Han\(2022\)](#), which suggests that the level of social support influencing the fulfillment of human needs, problem-solving, and psychological and emotional stability, plays a key role in determining the level

of mental health maladaptation. Meanwhile, research question 3, "Does social support moderate the relationship between drinking frequency and depression in young men?" revealed no moderating effect of social support. This aligns with the results of research question 4.

Thirdly, concerning research question 4, "Are there gender differences in the relationship between drinking frequency and depression, and the moderating effect of social support?" gender difference were identified, in both the impact of drinking frequency on depression and the moderating effect of social support occurring only in the female. This aligns with previous studies that have found that when there are gender differences in the occurrence of depression based on alcohol consumption or social support, the impact is evident only in women(Jun, 2012; Jang & Lee, 2021). In particular, while the direct effect of social support on depression was significant for both genders, the moderating effect of social support between drinking frequency and depression was observed only in women. This indicates that the moderating power of social support on depression is greater in women(Park & Bae, 2016; Fredrick, Demaray, Malecki & Dorio 2018). Also, levels of drinking frequency, social support, and depression varied by gender, with men having higher levels of drinking frequency, and women having higher levels of social support and depression. This reflects the more diverse alcohol consumption patterns in men(Park, Jun & Sohn, 2015), and women having more active social support(Paik, 2010) and exposure to negative events like discrimination, deprivation, and being more vulnerable to depression than men(Jeon, 2014).

Based on the consequences, the following discussions and suggestions are considered.

Firstly, the significant mutual association between external behavioral issues such as alcohol consumption and internal emotional problems like depression holds crucial implications. Alcohol consumption follows a pathophysiological route inducing mental health issues through the toxicity of alcohol(Lee & Choi, 2022; McHugh & Weiss, 2019). Particularly, young adults, with high expectations regarding alcohol consumption and a remarkably positive perception of alcohol, tend to overlook the potential adverse effects on physical and mental health(Lee & Moon, 2018). Thus, alcohol prevention policies should be implemented to rectify distorted perceptions and attitudes toward alcohol consumption among young adults. Suggestions include actively conducting health promotion guidance and moderation programs for young adults, and educational initiatives for preventing binge drinking. Currently, some mental health welfare centers are executing programs related to alcohol use disorders, and there is a separate center to operate specialized programs for alcohol addiction(National Center for Mental Health, 2023). However, most of these programs primarily involve counseling, support groups, rehabilitation treatments, and education, limiting the scope of the programs. In the future, mental health institutions should expand the variety of alcohol prevention and treatment programs, incorporating stress coping strategy education and visual education on alcohol-related harm cases. Furthermore, considering the rising prevalence of alcohol addiction, the number of inte-

grated addiction management centers, now at 58 nationwide ([National Center for Mental Health, 2023](#)), is still insufficient. Thus, it is need to expand addiction management specialized institutions in communities to provide diverse professional intervention services addressing high-risk alcohol consumption issues.

Secondly, people use the social support gained from close relationships with those they have strong connections with as a resilience resource to overcome life difficulties and resolve emotional crises ([Kang, Kim & Chung, 2015](#); [Park & Bae, 2016](#)). Social support is considered a buffering factor for mental health vulnerability. On one hand, when interpersonal relationships are not harmonious and social support is low, experiencing feelings of exclusion due to decreased cohesion can lead to emotional maladjustment such as depression ([Yeom & Han, 2022](#)). Therefore, to prevent psychological exclusion from society leading to mental health issues, efforts should be made to promote the formation of social relationships by strengthening social support. To achieve this, it is suggested to actively develop and expand programs for interpersonal relationship support, such as youth-tailored support groups or activities to enhance social networks, through active collaboration between social welfare practitioners. Currently, in Korea, various programs are being executed as part of social support and interpersonal relationship support initiatives, including one-on-one peer support, counseling, art therapy, mentoring programs, etc, however, these programs are mostly designed for the elderly, single-parent/multicultural families, teenagers, and people with disabilities/illnesses ([Park et al., 2018](#); [Son, Chung & Kim, 2019](#); [Lee, 2019](#); [Park & Cho, 2020](#); [Kim & Hyun, 2021](#)). Despite the increasing phenomenon of loneliness and social isolation among young adults due to low levels of social support, social support programs and services targeting young adults remain notably inadequate ([Joo, 2020](#)). Therefore, in the future, it is essential to actively develop community activities that provide young adults with opportunities to build diverse social support systems, and programs to enhance online and offline social networks. Additionally, strategies to improve program accessibility should be established to ensure that young adults are interested in and participate in the developed programs.

Thirdly, considering the high co-occurrence of alcohol use disorders and mental illnesses, when addressing alcohol-related issues, it is crucial to simultaneously address psychological problems such as depression ([Lee & Lee, 2020](#)). If depressive symptoms accompanying alcohol use are not resolved, there is a very likely to recur a detrimental cycle which individuals turn to alcohol again to shift the depressive emotions caused by drinking, known as the 'Alcohol-depression-alcohol' mechanism ([Park, 2021](#)). Particularly for young adults, given that they tend to have higher levels of both alcohol use and depression compared to other age groups, the impact of this detrimental cycle is likely to be more significant, to address alcohol issues among young adults, efforts are needed to cope with young adults depression ([Lee & Moon, 2018](#); [Oh, Yu, Lee & Kang, 2021](#)). Therefore, identifying young adults with latent vulnerability to depression promptly and promote mental health social wel-

fare interventions to help their mental health recovery is recommended. As a strategy, conducting regular mental health surveys targeting young adults, contributing to the scientific basis of young adults' mental health policies, and encouraging local community mental health institutions to actively pursue campaigns and projects for the promotion of young adults' mental health are suggested. According to the 'Current Status of Mental Health Projects' survey conducted jointly by the Ministry of Health and Welfare, the Ministry of Education, and the Ministry of Gender Equality and Family, the main targets of major mental health projects led by mental health welfare centers are mostly 'Individuals at risk of suicide and their families', 'Severe mental illness patients', and 'Children and adolescents under 19 years old', this reveals that institutions conducting mental health projects targeting young adults are somewhat sparse([National Center for Mental Health, 2023](#)). Thus, in the future, it is need to enhance regional mental health promotion projects with a focus on young adults and expand relevant professional institutions to establish a mental health support system for young adults' depression treatment and recovery.

Fourthly, what this study emphasizes most is the need for tailored support, considering gender, in practical and policy interventions related to social welfare. In this study, a gender difference was identified, indicating that women have higher levels of depression than men, and the impact of drinking frequency on depression and the moderating effect of social support are significant only for women. This implies that women are more vulnerable to alcohol use and depression than men and are sensitive to changes in depression based on social support, therefore, it is essential to reflect on gender issues when developing social welfare policies([Jun, 2012](#); [Jeon, 2014](#); [Jang & Lee, 2021](#); [Danzo, Connell & Stormshak, 2017](#)). According to a study by [Lee et al.\(2014\)](#), women are more likely than men to face negative events and socio-environmental factors such as career interruptions, social inequality, and discrimination, which can lead to negative emotions or stress, prompting higher tendency to use alcohol as a means of relief. Considering this, to address women's alcohol-related issues fundamentally, the government needs to make efforts to alleviate these lifestyle hindrances for women. For instance, despite the operation of comprehensive employment support institutions for women, such as the Women's Labor Institute and the Women's Vision Center, the employment rate for women is still significantly lower than for men, indicating the need for improved performance([Ryu, 2021](#)). The government should focus on developing effective policies to support women and reviewing and improving women's life support services. Furthermore, social support and mental health support programs also lack sufficient consideration of gender([Jeon, 2014](#); [Yeom & Han, 2022](#)). Hence, future practical efforts in social support and interventions for depression should attempt gender-specific approaches, particularly focusing on developing and disseminating various services that contribute to addressing these issues for young women.

The following are the limitations of this study and suggestions for subsequent studies.

This study, conducted a cross-sectional analysis using data from the "A Survey on the Living Conditions and Welfare Needs of Youths" by the Korea Institute for Health and Social Affairs, which is limited by the nature of the data, which is a one-time survey. Therefore, there were limitations in terms of causality that it is difficult to clearly define the relationships among drinking frequency, social support, and depression only with this data surveyed at a specific point in time. Thus, in next studies, it would be essential to conduct longitudinal analyses to examine how the causal relationship between drinking frequency and depression changes, and how the moderating effects of social support appears in these relationships over time.

Additionally, this study examined the relationship between drinking frequency and depression in the young adult population. Considering the toxic hypothesis discussed in the theoretical background, which highlights alcohol consumption as a factor influencing mental health, the context of mental health damage caused by indiscriminate drinking is expected to expand beyond the young adult population to include middle-aged and elderly populations. Therefore, in future research, in-depth investigations and studies should extend the analytical framework regarding the impact of drinking frequency on depression to a more diverse range of age groups.

Finally, the data used in this study, was measured as a single item asked about drinking frequency within the last month, making it impossible to distinguish between problematic drinkers and normal drinkers. Consequently, the analysis was limited to understanding only the level of depression based on drinking frequency, and it was hard to analyze the impact of problematic drinking behavior or alcohol consumption on depression from behavioral perspective. Typically, in academia and practical fields related to alcohol addiction, the AUDIT<sup>1)</sup> scale is used for measuring alcohol level and identifying problematic drinkers. Thus, in subsequent research, using the AUDIT scale to select problematic drinkers as the research sample based on the alcohol consumption type and explore the impact of problematic drinking on depression in young adults is recommended.

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1) This scale was developed by the World Health Organization(WHO) in 1989. It consists of 10 items on a 4-point scale, measuring three domains: drinking amount, alcohol dependence, and alcohol-related problems. The total response score is used to classify individuals on a scale of 0 to 40 points. Scores ranging from 0 to 11 is 'Normal drinking', 12 to 14 indicate 'Hazardous drinking', 15 to 25 indicate 'Alcohol abuse', and scores of 26 and above indicate 'Alcohol dependence'. In this context, all groups except for the 'normal drinking' group are diagnosed as having hazardous or problematic drinking.

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장시은은 연세대학교 사회복지대학원에서 사회복지학 석사학위를 받은 후, 보건복지부 국립정신건강센터 정신건강 연구소에서 연구원으로 재직 중이다. 주요 관심 분야는 정신보건, 정신질환 뇌 회로, 근로자 정신건강, 범죄정신병리 이며 현재 청년, 여성, 한부모가족, 청소년, 근로자 등 다양한 계층을 대상으로 정신건강 연구를 수행하고 있다.

(E-mail: sinergizer@korea.kr)

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김도현은 연세대학교 사회복지대학원에서 사회복지학 석사학위를 받았으며, 동 대학원에서 사회복지학 박사과정중 이다. 주요 관심 분야는 의료사회복지, 정신건강, 여성복지, 자살이며 현재 의료사회복지와 다양한 연령층의 정신건강을 중심으로 연구하고 있다.

(E-mail: zziby159@gmail.com)



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# 음주 빈도가 청년의 우울에 미치는 영향에서 사회적 지지의 조절효과: 성별 차이 분석

장시온<sup>1</sup> | 김도현<sup>2\*</sup>

<sup>1</sup> 보건복지부 국립정신건강  
센터 정신건강연구소

<sup>2</sup> 연세대학교

\* 교신저자: 김도현  
(zziby159@gmail.com)

## 초록

최근 한국 사회에서는 ‘우울 위험군의 저연령화 현상’이 나타나고 있다. 이 가운데 음주는 우울을 야기하는 주요 요인이며, 사회적 지지가 정신건강의 어려움을 조절하고 있음이 보고되었다. 본 연구는 각 변수들이 성별 차이를 보인다는 선행연구에 근거하여, 성별에 따라 청년의 음주 빈도가 우울에 미치는 영향과 사회적 지지의 조절효과를 분석하였다. 본 연구 수행을 위해 한국보건사회연구원에서 실시한 ‘청년층 생활 실태 및 복지욕구조사’ 데이터를 이용하였고, SPSS 25.0과 PROCESS macro 3.4 프로그램을 활용하였다. 분석 결과, 여성이 남성에 비하여 우울과 사회적 지지 수준이 높은 것으로 나타났다. 또한 음주 빈도와 우울 관계에서 사회적 지지의 조절효과가 여성의 경우에만 통계적으로 유의미하였다. 본 연구 결과를 토대로, 청년의 음주와 우울 문제는 동시에 함께 대응하고 정서 위기를 해소할 때 사회적 지지를 활용할 것을 강조하였다. 마지막으로 성별을 고려한 청년 정신건강 정책의 필요성을 제기하였다.

**주요 용어:** 청년, 음주 빈도, 우울, 사회적 지지, 성별 차이