

Sociodemographic and Health Related Factors Influencing Problem Drinking of the Echo Generation Using Data of the 2018 Korean National Health and Nutrition Examination Survey

Minyeong Kwak ^{1,*}

¹ Department of Nursing Science, Kyungsoo University; Assistant Professor, mykwak@ks.ac.kr

* Correspondence

<https://doi.org/10.5392/IJoC.2021.17.1.054>

Manuscript Received 26 October 2020; Received 21 March 2021; Accepted 24 March 2021

Abstract: *The aim of this study was to identify factors influencing problem drinking among the Echo Generation in South Korea and provide basic data for early intervention and mediation of problem drinking among the Echo Generation. This descriptive study performed a secondary analysis of raw data from the 2018 Korean National Health and Nutrition Examination Survey and used responses for problem drinking items from 999 Echo Generation participants born between 1979 and 1992. This study comprehensively investigated sociodemographic and health-related factors influencing problem drinking among the Echo Generation. SPSS WIN program (version 26.0) was used for data analysis. Gender ($\beta=-.32, p<.001$), education level ($\beta=.10, p=.002$), white-collar workers out of job ($\beta=-.09, p=.041$), and depression ($\beta=.11, p<.001$) were identified as factors that influenced problem drinking among the Echo Generation. Results of this study suggest that in order to prevent problem drinking among the Echo Generation, there should be user-customized prevention education and intervention programs.*

Keywords: echo generation; problem drinking; depression; secondary analysis; data analysis

1. Introduction

Baby Boomers are those who were born between 1955, right after the end of the Korean War, and 1963, when the Family Planning Policy was implemented in Korea. They started to work between the late 1970s and early 1990s, and played a great role in growing the Korean economy [1]. Their children, born between 1979 and 1992, are called late Baby Boomers, or the Echo Generation. The Echo Generation are characterized by their leadership in candle protests and active participation in the elections. They play a leading role in various areas of society including politics, culture, and economics by using various types of social media [2].

The Echo Generation have high education levels, as 75.8% of them receive post-secondary education. However, many of them are in unstable employment status such as non-regular part-time employment and their employment rate is 71.2% [3]. Along with the global economic crisis and Korea's economic recession, the fact that the Echo Generation has failed to obtain a stable employment status has now become a prolonged issue [4]. Although it is not only the case in Korea, it is particularly more serious in Korea as many of the unemployed Echo Generation had received higher level education, but failed to get jobs that match their education levels, nor have matching levels of income. As approximately 9.54 million people in Korea, accounting for approximately 20% of the population, are part of the Echo Generation, this phenomenon cannot help but have a great long-term effect on the Korean society, and may result in a decline in national competitiveness [5].

The unique sociodemographic characteristics of Echo Generation and environmental variables can increase the crisis of psychological functioning of Echo Generation. Stress that comes from continuously failing to get a job may lead to negative emotions including decreased self-esteem, anxiety related to unemployment, anger, hostility, and frustration [6], and may also lead to extreme results including problem drinking [7], collapse of interpersonal and family relationships, or suicide [8]. Thus, understanding the sociodemographic

and health related factors that influence the problem drinking of Echo Generation is directly related to their mental health. In addition, Siegrist and Marmot [9] reported that non-regular workers have higher risk of mental illnesses, as they believe they have lower wages and relatively more unstable employment status than regular workers, along with the fact that they do not receive equal compensation for equal labor. Thus there is a need to comprehensively investigate the effects of the Echo Generation's various sociodemographic factors, such as income levels, job types, and employment status, and health-related factors on problem drinking.

Past studies on the Echo Generation are mostly basic analyses on the sociodemographic characteristics [5], population trends [10], and suicide characteristics [11], and there is little study related to drinking [12]. Therefore, this study identifies the factors that affect the problem drinking among the Echo Generation, to provide basic data for developing early interventions and mediations of problem drinking among the Echo Generation.

2. Materials and Methods

2.1 Study Design

This descriptive study is a secondary analysis of the raw data from the 2018 Korean National Health and Nutrition Examination Survey, and aims to identify the factors that affect problem drinking among the Echo Generation.

2.2 Study Participants and Data Collection

The study uses the raw data from the 2018 Korean National Health and Nutrition Examination Survey (third year of the 7th survey). The participants are 999 Echo Generation born between 1979 and 1992, or aged between 26 and 39 as of 2018, who have responded to items related to problem drinking.

2.3 Study Tools

2.3.1 Problem Drinking

In order to assess problem drinking among the Echo Generation, the study uses three items included in the Korean National Health and Nutrition Examination Survey of drinking frequency, the amount of alcohol consumed at once, and binge drinking frequency. In the DSM-5 [13], alcohol use disorder is diagnosed when two or more of the criteria such as alcohol intake and duration, repeatability and persistence, withdrawal and tolerance, are met.

2.3.2 Sociodemographic Factors

The sociodemographic factors used in this study are six items from the Korean National Health and Nutrition Examination Survey: gender, marital status, education level, household income level, job type, and employment status. Marital status was divided into married and single; education level was divided into high school graduate or below, and university graduate or above; household income level was divided into high, middle (mid-low, mid-high), and low; job types were divided into managers and professionals, white-collar workers, service and sales workers, soldiers and others, and unemployed such as housewife or student; employment status was divided into regular workers, non-regular workers and others.

2.3.3 Health-related Factors

The health-related factors used in this study are eight items from the Korean National Health and Nutrition Examination Survey: subjective health status, depression, stress awareness, counseling experiences for mental issues, cardio exercise, strength exercise, daily sleep hours during weekdays, and daily sleep hours during weekends. Subjective health status was divided into good (very good, good), normal, and bad (bad, very bad); depression was divided into depressed or normal, based on the scores of the depression assessment scale PHQ-9 and a score of 10 as a reference point; stress awareness was divided into greatly stressed (extremely, very) and slightly stressed (slightly, little to no); counseling experiences for mental issues was divided into whether or not the participant had experiences of counseling over the past year; cardio and strength exercises were divided into whether or not the participant engaged in such exercises; daily sleep hours during weekdays and

weekends were divided into less than four hours, four hours to less than eight hours, and eight hours and above. PHQ-9 is a simple self-report questionnaire designed to screen for depression and assess the severity of depression. It is a 4-point Likert scale, and the range of scores is composed of 0 to 27 points. In the study of Kroenke et al., 9 points were the highest among the cut-off scores in terms of sensitivity and specificity, but 10 points, which are simple scores that are easy to apply in the actual clinical scene, were presented as the optimal cut-off score [14]. The range of sleep time was based on the study of Eun et al. that Koreans had an average sleeping time of 8 hours and an extremely short sleep of less than 4.5 hours [15].

2.4 Data Analysis

SPSS WIN program (version 26.0) was used for data analysis in the study. As the study data was limited to the Echo Generation, a certain group, there was no need for complex sample analysis. The detailed analytic methods are as follows.

1) Frequency and percentages were used to assess the sociodemographic factors, health-related factors, and problem drinking levels of the Echo Generation.

2) The differences in problem drinking according to the sociodemographic and health-related factors among the Echo Generation were analyzed using independent t-test and one-way ANOVA, and the post-hoc analysis was conducted using scheffé test.

3) Multiple regression analysis was used to verify the factors that affect problem drinking among the Echo Generation

3. Results

3.1 Sociodemographic Factors, Health-related Factors, and Problem Drinking Levels of the Echo Generation

In terms of the sociodemographic factors of the participants, females with 51.2% (511), married with 61.1% (610), and university graduates or above with 71.3% (712) took up the majority of the participants. The most common household income level was middle with 49.0% (490), and the most common job type was managers and professionals with 27.2% (272). 40.1% (401) were regular workers. In terms of health-related factors, 55.5% (554 participants) of the participants answered that they had a normal subjective health status, and 5.3% (53 participants) of the participants were considered depressed as they had a score of 10 or above on the PHQ scale. 96.3% (962 participants) of the participants did not have experiences of counseling from mental issues. There were more participants who participate in cardio exercises, but it was the opposite for strength exercises. 51.3% (512 participants) answered they regularly participate in cardio exercises, while 69.5% (694 participants) answered that they do not participate in strength exercises. The most common sleep hours during the weekdays were four hours to less than eight hours (80.6%, 805 participants). It was the same for during weekends as well, but there were less participants who responded so (59.6%, 595) (Table 1). The mean problem drinking level of the participants was 8.95 ± 3.40 (on a scale of 0-12).

Table 1. Problem Drinking according to the Characteristics of Participants

(N=999)

Characteristics	Category	n(%)	t or F	P (Scheffé)
Gender	M	488(48.8)	-10.93	<.001
	F	511(51.2)		
Marital Status	Married	610(61.1)	-0.33	.742
	Single	389(38.9)		
Education Level	High School Graduate or Below	287(28.7)	3.52	<.001
	University Graduate or Above	712(71.3)		
Household Income Level	High	247(24.7)	1.96	.142
	Middle	490(49.0)		
	Low	262(26.2)		
Job Types	Managers, Professionals ^a	272(27.2)	7.49	<.001 (a<c, e<b,c,d)
	White-collar Workers ^b	202(20.2)		
	Service and Sales Workers ^c	119(11.9)		

	Others ^d	172(17.2)		
	Unemployed (Housewife, student, etc.) ^c	234(23.4)		
Employment Status	Regular Workers	401(40.1)	1.69	.185
	Non-Regular Workers	223(22.3)		
	Others	375(37.5)		
Subjective Health Status	Good	338(33.8)	2.07	.127
	Normal	554(55.5)		
	Bad	107(10.7)		
Depression	Depressed (PHQ \geq 10)	53(5.3)	2.14	.037
	Normal	946(94.7)		
Stress Awareness	Greatly Stressed	350(35.0)	0.50	.620
	Slightly Stressed	649(65.0)		
Counseling Experiences for Mental Issues	No	962(96.3)	0.92	.357
	Yes	37(3.7)		
Cardio Exercise	No	487(48.7)	0.42	.674
	Yes	512(51.3)		
Strength Exercise	No	694(69.5)	2.08	.038
	Yes	305(30.5)		
Daily Sleep Hours during Weekdays	Less than 4 hours	48(4.8)	0.06	.938
	4 hours to less than 8 hours	805(80.6)		
	8 hours and above	146(14.6)		
Daily Sleep Hours during Weekends	Less than 4 hours	9(3.9)	0.06	.559
	4 hours to less than 8 hours	595(59.6)		
	8 hours and above	365(36.5)		

3.2 Differences in Problem Drinking Among the Echo Generation According to Sociodemographic and Health-related Factors

When analyzing the differences in problem drinking among the participants according to sociodemographic factors, it was found that there were statistically significant differences by gender, education level, and job types. There were statistically significantly higher problem drinking levels from females ($t=-10.93, p<.001$) than from males, and those who were high school graduates or below ($t=3.52, p<.001$) than those who were university graduates or above. The results of the Scheffé test as a post-hoc test on job types showed that service and sales workers had statistically significantly higher problem drinking levels than managers and professionals; white-collar workers, service and sales workers, and other workers had statistically significantly higher problem drinking levels than the unemployed including housewives and students ($t=7.49, p<.001$).

The analysis on the differences in problem drinking among the participants according to health-related factors showed that there were statistically significant differences by depression and strength exercises. That is, those who were depressed ($t=2.14, p=.037$) had statistically significantly higher problem drinking levels than those who were not depressed, and those who did not participate in strength exercises ($t=7.49, p<.001$) had statistically significantly higher problem drinking levels than those who did participate in strength exercises (Table 1).

3.3. Factors that Affect Problem Drinking of the Echo Generation

To identify the factors that affect problem drinking of the Echo Generation, a multiple regression analysis was conducted by using the factors that showed statistically significant differences from the univariate analysis (gender, education level, job types, depression, and strength exercises) as independent variables. The independent variables, which were nominal variables, were processed as dummy variables before they were inputted, and were analyzed using the enter method. After verifying the assumptions of the regression analysis, there was no issue with the independence of residuals as the Durbin-Watson was 1,891. Normally, when identifying the changes in the dependent variables with a unit increase of the values of the independent variables, it is said that multicollinearity, which questions the interpretation of the results by assessing strong correlations

among the variables, is not an issue if the variance inflation factor (VIF) is less than 10. The multicollinearity among the independent variables of this study ranged from 1.01 to 2.31, and so it was not an issue.

The analysis results showed that factors that affect problem drinking among the Echo Generation were gender ($\beta=-.32, p<.001$), education level ($\beta=.10, p=.002$), white-collar workers out of job types ($\beta=.09, p=.041$), and depression ($\beta=.11, p<.001$). That is, females, high school graduates or below, those who are white-collar workers, and the depressed were more likely to engage in problem drinking. The explanation power of the factors for problem drinking was 13.3% (Table 2).

Table 2. Influencing Factors on Problem Drinking (N=999)

Variables	B	SE	β	t	p
Gender	-2.196	0.213	-.323	-10.31	<.001
Education Level	0.769	0.244	.102	3.148	.002
Job Types – Managers, Professionals	-0.01	0.342	-.001	-0.03	.976
Job Types – White-collar Workers	0.721	0.352	.085	2.047	.041
Job Types – Service and Sales Workers	0.759	0.387	.072	1.961	.05
Job Types –Unemployed (Housewife, student, etc.)	-0.094	0.345	-.012	-0.273	.785
Depression	1.587	0.45	.105	3.525	<.001
Strength Exercise	0.058	0.224	.008	0.259	.796

4. Discussion

This study aimed to identify the factors that affect problem drinking among the Echo Generation by using the raw data from the 2018 Korean National Health and Nutrition Examination Survey (third year of the 7th survey). The comprehensively examined affecting factors of problem drinking among the Echo Generation were divided into sociodemographic factors and health-related factors.

After analyzing the problem drinking levels of the Echo Generation according to the sociodemographic factors, it was shown that females and high school graduates or below had statistically significantly higher problem drinking levels than males and university graduates or above, respectively. Among job types, service and sales workers had statistically significantly higher problem drinking levels than managers and professionals; white-collar workers, service and sales workers, and other workers had statistically significantly higher problem drinking levels than the unemployed including housewives and students.

The differences by gender in this study showed contrasting results with those from Yang [16] who conducted a study on college students and from Kwon [17] who conducted a study on office workers. However, according to the Health and Welfare Statistical Yearbook from the Ministry of Health and Welfare, the high-risk drinking rate among those in their twenties was 17.8% for males and 7.8% for females in 2010, and 17.0% for males and 11.1% for females in 2017. The high-risk drinking rate decreased for males, but rapidly increased for females. Considering prior studies have mentioned females show distinct differences in drinking rates by generation [18], and this study is focused on a single generation, the importance of managing drinking problems of females in the Echo Generation should be noted.

As there was no study that verified the differences in problem drinking levels by job types of the Echo Generation, it was difficult to make direct comparisons. However, the results of this study were consistent with those of many prior studies that verified the relationship of job types and problem drinking. That is, there are prior studies that have shown that office workers have higher problem drinking levels than others [17] and that there is a higher proportion of working women with problem drinking levels than that of housewives [19]. Although most (71.3%) of the Echo Generation are highly educated and are university graduates or above, there should be preventive measures for problem drinking for those that are high school graduates or below. As well, the same goes for those with job types that have serious problem drinking levels, such as service and sales workers and white-collar workers.

In terms of health-related factors, it was shown that those who are depressed had statistically significantly higher problem drinking levels than those who were not, and those who did not engage in strength exercises had statistically significantly higher problem drinking levels than those who did. These results were consistent with those of prior studies [20] that showed college students drink to cope with negative emotions such as

depression or stress. The Echo Generation may become depressed or stressed due to a sense of deprivation that comes from low employment rates in comparison to their high education levels. As a result, it may be inferred that they turn to drinking as a coping mechanism for self-withdrawal. In conclusion, there should be preventive interventions to provide the Echo Generation with positive coping mechanisms such as strength exercises when they are in stressful situations.

In this study, data from the Korean National Health and Nutrition Examination Survey were used, among the variables investigated due to the characteristics of the panel data, only the limited variables that were most suitable for the purpose of the researcher were used to analyze them. In addition, this study has limitations in grasping the overall meaning through a cross-sectional analysis using the data surveyed in 2018. In spite of these limitations, it is expected to be used as basic data in developing and applying programs to improve problem drinking of the eco-generation in the future, as it analyzed the factors influencing problem drinking of the eco-generation using data surveyed nationwide.

The results of the study suggest that in order to prevent problem drinking among the Echo Generation, there should be user-customized prevention education and comprehensive intervention programs that consider gender, education level, and job types as factors that affect problem drinking levels among the Echo Generation. Furthermore, the Echo Generation should be encouraged to use positive coping mechanisms such as strength exercises in place of emotion-focused coping mechanisms such as drinking or turning to the idea of “Hell-Chosun” when they are in various types of stressful situations. This will lead to the depression management for the Echo Generation, which will ultimately contribute to problem drinking management and mental health promotion.

Acknowledgments: This research was supported by Kyungsoo University Research Grants in 2019.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References

- [1] Research center of current affairs common sense, *Common sense to make smarter: Current affairs, liberal arts and checkbook*, Seoul, Korea: Sidaegosi, 2014.
- [2] J. M. Son, “Job stress trajectories of the eco-boomer generation in the convergence era and predicting factors,” *Journal of Digital Convergence*, vol. 15, no. 2, pp. 405-409, Feb. 2017, doi: <https://doi.org/10.14400/JDC.2017.15.2.405>.
- [3] B. K. Moon and S. Y. Yu, “The eco-generation is ‘ego-generation’.” *Donga news*, <https://www.donga.com/news/article/all/20120803/48301556/1> (accessed Aug. 3, 2012).
- [4] J. M. Son, “trajectories of the change and the predictors on psychosocial function for the echo boomers generations,” Ph.D. dissertation, Dept. Social Welfare, Dongguk University, Seoul, Korea, 2015.
- [5] Statistics Korea, “Sociodemographic characteristics of baby boomers and echo generation,” Daejeon, Korea: Statistics Korea, 2012.
- [6] M. R. Lim, “Financial Management Improvement efficiency study based on the economic activities of echo boomers,” M.S. thesis, Dept. Policy, Korea University, Seoul, Korea, 2013.
- [7] S. L. Benton, S. A. Benton, and R. G. Downey, “College student drinking, attitudes toward risks, and drinking consequences,” *Journal of Studies on Alcohol*, vol. 64, no. 4, pp. 543-551, Jan. 2006, doi: <https://doi.org/10.15288/jsa.2006.67.543>.
- [8] S. K. Brooks, R. Dunn, R. Amlot, G. J. Rubin, and N. Greenberg, “A systematic, thematic review of social and occupational factors associated with psychological outcomes in healthcare employees during an infectious disease outbreak,” *Journal of occupational and environmental medicine*, vol. 60, no. 3, pp. 248-257, Mar. 2018, doi: <https://doi.org/10.1097/JOM.0000000000001235>.
- [9] J. Siegrist and M. Marmot, “Health inequalities and the psychosocial environment—two scientific challenges,” *Social science & medicine*, vol. 58, no. 8, pp. 1463-1473, Apr. 2004, doi: [https://doi.org/10.1016/S0277-9536\(03\)00349-6](https://doi.org/10.1016/S0277-9536(03)00349-6).
- [10] K. C. Nam, “Implications for population trends and regional policy of baby boomers and echo generations,” *KRIHS Policy brief*, vol. 432, pp. 2-6, 2013.

- [11] T. M. Song, D. L. Jin, J. Y. Song, J. Y. An, and Y. H. Cho, "A comparative analysis of suicide characteristics by age group in Korea," *Journal of The Korea Society of Health Informatics and Statistics*, vol. 38, no. 1, pp. 122-142, Apr. 2013.
- [12] M. J. Park, "Suicidal Ideation in Korean Echo Generation and Associated Factors : Using 2012 Korea Health Panel Data," *Journal of Korean Academic Society of Home Health Care Nursing*, vol.23, no. 1, pp. 33-44, 2016.
- [13] American Psychiatric Association, Kwon JS, translator, *Diagnostic and statistical manual of mental disorders (DSM-5)*, 5th ed. Hakjisa, Seoul, Korea, 2013.
- [14] K. Kroenke, R. L. Spitzer, and J. B. Williams, "The PHQ-9: Validity of a brief depression severity measure," *J Gen Intern Med*, vol. 16, pp. 606-613, 2001, doi: <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>.
- [15] K. S. Eun and S. E. Cha, "Gender Differentials and Covariates of Sleep Time in Daily Life of Korea," *Journal of the Korean Official Statistic*, vol.15, no. 2, pp. 82-103, 2010.
- [16] N. M. Yang, "Understanding College Students' Drinking Problem by Sex and Drinking Levels," *Korean Journal of Counseling*, vol.11, no. 4, pp. 1707-1727, 2010, doi: <https://doi.org/10.15703/kjc.11.4.201012.1707>.
- [17] G. Y. Kweon, "Factors Influencing Drinking of Employees : Focus on the White Collar Employees," *Korean Journal of Social Welfare*, vol.57, no. 2, pp. 93-118, 2005.
- [18] Y. C. Hong, S. S. Chun, M. E. Yun, L. S. Asante, and C. S. Chu, "A study of high-risk drinking patterns among generations based on the 2009 Korea national health and nutrition examination survey," *Osong Public Health and Research Perspectives*, vol.5, no. 1, pp. 46-53, 2014, <https://doi.org/10.1016/j.phrp.2014.01.006>.
- [19] H. R. Park and J. J. Lee, "Research on culture of women's alcohol consumption: When women drink?," *Korean Journal of Woman Psychology*, vol.9, no. 2, pp. 39-52, 2004.
- [20] C. Y. Yoo and H. M. Kim, "Examining the Relationship Between Daily Stress and Problem Drinking Among College Students: Mediating Effects of Negative Affect and Maladaptive Coping Strategy," *Journal of Social Science*, vol.21, no. 4, pp. 137-163, 2010, <https://doi.org/10.16881/jss.2010.10.21.4.137>.



© 2021 by the authors. Copyrights of all published papers are owned by the IJOC. They also follow the Creative Commons Attribution License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.