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Predictors of happiness in middle-aged adults: a secondary data analysis of the 8th Korea national health and nutrition examination survey (KNHANES VIII-1) 2019

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Abstract--This is a secondary analysis study using raw data from the 8th Korea National Health and Nutrition Examination Survey (2019), which identified the factors affecting the happiness of middle-aged adults. The data of the 1,862 subjects from the said survey were analyzed. Complex sample cross-analysis and complex sample logistic regression were performed on middle-aged adults. Studies have shown statistically significant differences in education level, marital status, household income quintile, economic activity, smoking, sleep time, subjective health awareness, and stress awareness. Education level, smoking, subjective health awareness, and stress awareness were found to be factors affecting the happiness of middle-aged adults. Compared to the poor health groups, happiness was 3.41 and 3.20 times higher in the good and usual health groups, respectively. The group that felt less stress was 6.15 times happier than the group that felt more stress. The happiness of elementary, middle school, and high school graduates was 0.16, 0.72, and 0.47 times lower, in this order, than that of college graduates and above. Smokers' level of happiness was 0.29 times lower than non-smokers. Therefore, education on health care should be strengthened for those in middle age and they should be helped to find ways to relieve stress in life as well as in work environment. In addition, it is necessary to create an environment such as lifelong education that can improve educational background, and continuous anti-smoking programs should be implemented.

Keywords--*complex sample analysis, happiness, KNHANES, middle-aged adults.*

Introduction

The Necessity of Study

As the average life expectancy of humans increases, the period of middle-aged life in the life cycle becomes relatively long and important (Byeon 2006). Middle-age is the middle of when you divide your life into the former and latter half, and it is the middle generation between young and old generation. Middle age is the period of age beyond young adulthood but before the onset of old age. Through the disputed exact range, most sources place middle adulthood between the ages of 45-65. Middle age is the most stable and satisfying period with family, social status, and economic freedom achieved, but it is a time when one must adapt to the decreasing physical strength as one has to take responsibility for children and elderly parents, take the heavy responsibility of the state and society, and experience physical decline (Kim et al., 2016). The period is a long process of more than 20 years, so health problems and maintaining a happy life are very important concerns (Sim 2015).

Happiness is a basic and meaningful positive emotion that leads to a healthy life (Argyle et al., 1989). It is also used as psychological and subjective well-being, as well as subjective quality of life (Diener 1984). According to the World Happiness Report released in March 2021, which measures subjective happiness with life assessments, positive emotions, and negative emotions, Korea's happiness index for 2018-2020 is 62nd out of 149 countries (10 points, 5.845 points) and 30th out of 38 OECD countries (Helliwell et al., 1984). It can be said that Korea's happiness ranking is in the lower ranks. According to a study of subjective happiness by life cycle among Japanese and Koreans, the level of happiness in Korea decreased as age increased, and the difference in subjective happiness over the life cycle was significantly greater. Young and middle-aged Koreans are happier than the same groups in Japan, but older Koreans are less happy than those in Japan (Kim 2017). Unlike the U-shape trend of major advanced countries, Koreans' level of life satisfaction does not show an upward trend even after the lowest point in middle age (Kim et al., 2019). Having a negative attitude in middle age makes it difficult to achieve the developmental stage of old age (Kim 2016). As middle-aged people prepare for old age, they need to be managed so that they can prepare accordingly. A happy life should enable people to prepare a meaningful life for a better future while also enjoying the life of the present moment (Seligman 2006). Happy people do not compare themselves with others, and such comparisons undermine happiness (Kim 2019). There are differences in happiness according to life cycle. Middle age is the middle of life, and it is an important time to prepare for old age. Hence, it is of interest to investigate the factors that determine happiness in middle age.

In terms of happiness in middle age, various characteristics determine the degree of happiness. Middle-aged adults consider family relationships, physical health, mental health, economic freedom, and stability more important (Chong et al., 2013) and make more efforts to ensure their happiness. Due to the various changes experienced in middle-age, the role of a spouse who is a life partner becomes important. Research has revealed that those who receive positive reviews from their spouses and are supported through a sympathetic attitude are more

likely to be married than those who do not (Cobb et al., 2001). Child-rearing is a stressful and negative task for parents (Nomaguchi et al., 2003). In middle-aged adults, the relationship between a spouse and a child is an important factor in determining happiness. When experiencing life, economic and emotional difficulties, the level of satisfaction in life is significantly lower if there is no one to rely on other than the family [8]. In middle-aged adults, the overall health status was high in groups that had good economic and current health, did not consume alcohol, enjoyed leisure activities, and had no child-rearing burden (Ha et al., 2020). In middle-aged adults, not only personal characteristics, but also social characteristics affect health conditions. Health is a major determinant of happiness. Health care in middle age is more important than ever because chronic diseases, which increase from middle age, lead to negative consequences throughout life, including worsening health conditions and increased medical spending, as well as psychological contraction and reduced social activities (Lee et al., 2021; Kim et al., 2016). If people do not take good care of their health in the middle age, they will not be able to enjoy a healthy and happy life in their upcoming old age, so it is very important that health activities be carried out in this period. In modern society, most adults want to work and achieve self-realization and economic independence through work (Wrzesniewski 1997). In particular, the period of middle-age is more important because it solidifies the job through the establishment and maintenance of the work and achievements in the job (Jeon et al., 2021; Super et al., 1996). The unemployment and unemployed status of the economically inactive population has a significant negative impact on the level of life satisfaction in the older 50-64 age group (Kim et al., 2019). It was also reported that the meaning of work for middle-aged adults promotes happiness (Jo et al., 2018). Those who achieve satisfactory relationships with others or their work and family in middle age develop their own interests or hobbies (Kim et al., 2016).

This allows people to live a happy life. Nowadays, people are more economically relaxed than in the past, but their sense of happiness is not as good (Kim 2014). Happy retirement conditions suggest need for other psychological or emotional factors, as well as economic factors. The higher the physical, political, and social preparation for retirement in middle-aged people, the higher the subjective sense of happiness (Lee 2017). People with high psychological well-being accept themselves as they are and maintain positive interpersonal relationships (Park et al., 2014). If middle-aged adults cope well with various changes that take place around them and eliminate problem factors to maintain a happy life, they will transition to a happy old age. Therefore, it is necessary to explore various factors that determine happiness in middle-aged individuals. To date, to the best of our knowledge, no studies have identified factors impacting happiness among middle-aged adults in some areas or have examined happiness centered on socio-demographic and health-related characteristics in national studies. Using representative samples from Korea, this study determines a way to increase happiness by identifying the degree of happiness of middle-aged adults and the factors of socio-demographic and health-related characteristics that affect them.

The Purpose of Research

This study was conducted to prepare measure to promote happiness in middle-aged adults by identifying factors using data from the 8th National Health and Nutrition Survey. The specific objectives are as follows. First, to identify the socio-demographic and health-related characteristics, and degree of happiness of middle-aged adults. Second, to find the difference in happiness according to the socio-demographic and health-related characteristics. Third, to determine the factors that affect the happiness of middle-aged adults.

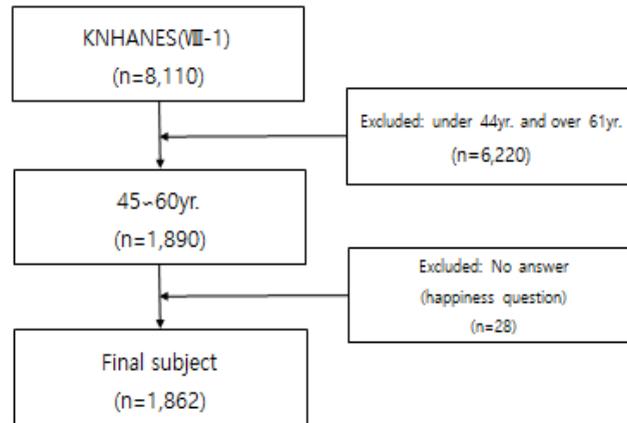
Methods

Study design

This study is a secondary analysis study using raw data from the 8th National Health and Nutrition Survey (2019), which attempted to identify the factors affecting the happiness of middle-aged adults.

Research Samples

The sampling framework of the National Health and Nutrition Survey used the most recent population and housing survey data available at the time of the sampling design as the basic sampling framework, allowing representative samples of people aged one and older living in the target population of Korea. A two-stage stratified population sampling method with survey districts and households as the first and second sampling units, respectively, was applied. In the 8th year (2019) of the survey, extraction frames were stratified based on city/province, dong/township and myeon; residential type (general housing, apartment), residential area ratio, and single-person household ratio were used as internal stratification criteria. There are 192 survey districts per year, excluding nursing homes, military facilities, prison facilities, and foreign households within the sample survey districts, and 25 sample households were selected from the 8th year (2019). All household members aged one or older who met the appropriate household member requirements were selected as the subjects of the survey. In the first year of the 8th National Health and Nutrition Survey, 3,670 households participated, comprising 10,859 people, 8,110 of whom participated (74.7% participation rate) (Korea Disease Control and Prevention Agency 2021). The study involved 1,890 adults aged 45 to 60. Among them, 1,862 were targeted, except for 28 who did not respond to Health-related Quality of Life Instrument with eight items of happiness questions (HINT-8). The process of selecting survey target is illustrated in Figure 1.

Figure 1. *Selection process of subjects to study*

Research Tools

The study used basic variables of the 8th National Health and Nutrition Survey and its data, classified and used according to the definition of indicators in the User Guide. The survey consisted of three domains assessing study subjects' socio-demographic characteristics, health-related characteristics, and happiness.

Socio-Demographic Characteristics

The socio-demographic characteristics included gender, age, education level, marital status, household income quintile, and economic activity. Gender was divided into men and women. The level of education was classified as "less than elementary school graduate", "middle school graduate", "high school graduate" and "college graduate and above". Marital status was classified as unmarried and married. Household income classifications were divided into "upper", "upper-middle", "lower-middle" and "lower" according to the average monthly household equivalized income. The state of economic activity classifies "employees" as economic activity and "unemployed or economically inactive" as non-economic activity.

Health-Related Characteristics

Health-related characteristics included smoking, sleep time, physical activity, subjective health awareness, stress awareness, and subjective body type awareness. The current daily or occasional smoking was analyzed by dividing the current smoking case into smokers, those who have smoked in the past, or those who have never smoked. In terms of drinking, respondents were classified as non-drinkers (have never consumed alcohol or less than one drink per month for the last year) or drinkers (more than one drink per month for the last year). The average sleep time during the week and that during the weekend were included as variables and were reclassified to less and more than six hours. In terms of physical activities, participants were classified as "active groups" if they practice medium-intensity physical activities for more than half an hour per week, or 1 hour and 15 minutes of high-intensity physical activities, otherwise "inactive

groups". Subjective health was determined by asking "How would you rate your health?" A total of five categories were included: "very good", "good", "usual", "bad", and "very bad". "Very bad" and "good" were reclassified as "good", "usual" as "usual" and "bad" and "very bad" as "bad". Stress recognition was divided into "less stressed" and "more stressed". Subjective body type recognition was determined by asking, "What do you think of your current body type?" A total of five categories were identified: "very thin", "a little thin", "normal", "a little obese", and "very obese". "Very thin" and "a little thin" were classified as "underweight", "normal" as "normal", and "a little obese" and "very obese" as "overweight".

Happiness

Happiness was based on the response data in the Korean Health-related Quality of Life measurement of the Health Survey. The subjects' feelings were examined in four categories: "I am always happy", "I am often happy", "I am sometimes happy", and "I am not happy at all". "I am always happy", "I am often happy", and "I am sometimes happy" were classified as "happy". "I am not happy at all" was classified as "I am not happy".

Table 1
Classification and definition of independent variables

<i>Characteristic</i>	<i>Definition</i>
<i>Socio-demographic factors</i>	
<i>Gender</i>	<i>Male, female</i>
<i>Age (yr)</i>	<i>45-60</i>
<i>Education level</i>	<i>≤Elementary school, middle school, high school, ≥college</i>
<i>Marital status</i>	<i>Married, unmarried</i>
<i>Household income quintile</i>	<i>Lower, lower-middle, upper-middle, upper</i>
<i>Economic activity</i>	<i>Employed, not employed</i>
<i>Health-related factors</i>	
<i>Smoking</i>	<i>Smoker, non-smoker</i>
<i>Drinking</i>	<i>Non-drinker, drinker</i>
<i>Sleep time (hr)</i>	<i><6, ≥6</i>
<i>Physical activity</i>	<i>Inactive, active</i>
<i>Subjective health awareness</i>	<i>Good, usual, bad</i>
<i>Stress awareness</i>	<i>Little, too much</i>
<i>Subjective body type awareness</i>	<i>Underweight, normal, overweight</i>
<i>Happiness</i>	<i>Yes, no</i>

Data Collection

The National Health and Nutrition Survey is a nationwide survey conducted based on the National Health Promotion Act and is conducted directly by the Korea

Disease Control and Prevention Agency under the Bioethics Act and Enforcement Rules. The raw data from the 8th Survey were obtained with the approval of the Korea Centers for Disease Control and Prevention's Research and Ethics Committee (IRB No. 2018-01-03-C-A). In compliance with the Privacy Act and Statistical Act, the Korea Centers for Disease Control and Prevention provides only data that has been anonymized so that individuals cannot be estimated from investigative data. Raw data were downloaded (<https://knhanes.kdca.go.kr/knhanes/main.do>) and used after obtaining consent for the collection and use of personal information of the National Health and Nutrition Survey and the researcher pledged to implement statistical data user compliance.

Data Analysis

Data analysis was performed using IBM SPSS Statistics 25.0. An analysis plan file was generated to conduct complex sample analysis. The layer specifies a distributed estimation layer (kstrata) for ages 45-60. The cluster was set up with a survey sphere (psu), and the sample weight was set with a health-examination weight. The statistical significance level was set at $p < 0.05$. (1) The socio-demographic and health-related characteristics of the subjects were used to produce unweighted numbers and weighted percentages using complex sample frequency analysis. (2) The difference in happiness according to the aforementioned characteristics of the subjects was determined after designating a sub-population group. (3) The factors affecting the happiness of the subjects were analyzed using complex sample binary logistic regression with happiness as the dependent variable and related variables as independent variables.

Results

Subjects' Socio-Demographic Characteristics

The results of the frequency analysis to identify the socio-demographic characteristics are reported in Table 2. Gender distribution was 50.1% for men and 49.9% for women. The highest level of education was "high school graduate" (45.1%). In terms of marital status, 95.4% were "married" and 4.6% were "unmarried". The household income quintile was 41.1% for "upper", followed by 27.8% for "upper-middle", 22.5% for "lower-middle", and 8.6% for "low income". In terms of economic activity, 75.9% of the subjects were "employed" and 24.1% were "not employed".

Table 2
Socio-demographic characteristics in middle-aged adults (N=1,862)

Variables		Unweighted n	Weight %
Gender	Male	774	50.1
	Female	1088	49.9
Education level	≤Elementary school	99	4.6
	Middle	173	8.9

	school		
	High school	810	45.1
	≥College	721	41.5
Marital status	Married	1768	95.4
	Unmarried	94	4.6
	Lower	175	8.6
Household income quintile	Lower-middle	416	22.5
	Upper-middle	508	27.8
	Upper	755	41.1
Economic activity	Employed	1335	75.9
	Not employed	469	24.1

Health-related characteristics of the subjects

The results of the frequency analysis used to identify the subjects' health-related characteristics are reported in Table 3. Non-smokers (79.0%) outnumbered smokers (21.0%). Regarding drinking, there were more drinkers (58.1%) than non-drinkers (41.9%). "More than six hours" (78.2%) was the most common sleeping time. In terms of physical activity, there were more inactive groups (56.0%) than active groups (44.0%). In terms of subjective health, "usual" (54.7%) was the most common, followed by "good" (31.6%) and "bad" (13.7%). Regarding the stress recognition rate, more people answered "little" (74.9%) than those who answered "too much" (25.1%). In subjective body type recognition, "overweight" (45.4%) was the highest, followed by "normal" (41.7%) and "underweight" (12.8%).

Table 3
Health-related characteristics in middle-aged adults (N=1,862)

Variables		Unweighted n	Weight %
Smoking	Smoker	342	21.0
	Non-smoker	1520	79.0
Drinking	Non-drinker	828	41.9
	Drinker	1033	58.1
Sleep time (hr)	<6	398	21.8
	≥6	1464	78.2
Physical activity	Inactive	1009	56.0
	Active	793	44.0
Subjective health awareness	Good	561	31.6
	Normal	989	54.7
	Bad	257	13.7
Stress awareness	Little	1391	74.9
	Too much	471	25.1
Subjective body type awareness	Underweight	221	12.8
	Usual	778	41.7
	Overweight	862	45.4

Subjects' degree of happiness

The subjects' degree of happiness is reported in Table 4. According to the analysis, 1,862 of the participants indicated they were happy, accounting for 96.1%.

Table 4
Happiness degree in middle-aged adults (N=1,862)

Group	Unweighted n	Weight %
Happiness group	1791	96.1
Non-happiness group	71	3.9

Difference in happiness according to the subject's socio-demographic characteristics

The differences in happiness according to the participants' socio-demographic characteristics are reported in Table 5. Happiness showed statistically significant differences in terms of education level ($\chi^2=6.93$, $p<.001$), marital status ($\chi^2=20.17$, $p<.001$), household income quintile ($\chi^2=10.89$, $p<.001$), and economic activity ($\chi^2=4.97$, $p<.05$). In the happy group, 44.4% were "above college graduate", 43.7% were "high school graduate", 8.0% were "middle school graduate" and 3.9% were "under elementary school graduate". Married couples accounted for 96.2% (unmarried couples 3.8%). Household income ratios were 42.7% for "upper", 28.5% for "upper-middle", 22.0% for "lower-middle" and 6.7% for "lower". In terms of economic activity, 76.5% were employed compared to 23.5% unemployed.

Table 5
Comparison of socio-demographic characteristics of happiness group and non-happiness group (N=1,862)

Variables		Happiness		χ^2 (p)
		Yes Unweighted n (Weight %)	No Unweighted %	
Gender	Male	613(49.8)	30(58.2)	1.24 (.268)
	Female	930(50.2)	28(41.8)	
Education level	≤Elementary school	76(3.9)	9(18.2)	6.93 (<.001)
	Middle school	129(8.0)	6(6.4)	
	High school ≥College	670(43.7) 624(44.4)	28(54.0) 12(21.4)	
Marital status	Married	1477(96.2)	43(78.6)	20.17 (<.001)
	Unmarried	66(3.8)	15(21.4)	
Household income quintile	Lower	122(6.7)	24(36.9)	10.89 (<.001)
	Lower-middle	343(22.0)	11(19.5)	
	Upper-	431(28.5)	9(18.1)	

	middle			
	Upper	643(42.7)	13(25.5)	
Economic	Employed	1109(76.5)	33(61.2)	4.97
activity	Not			
	employed	390(23.5)	23(38.8)	(.027)

Differences in happiness according to the subject's health-related characteristics

The differences in happiness according to the health-related characteristics of the participants are reported in Table 6. Happiness showed statistically significant differences in terms of smoking ($\chi^2=21.55$, $p<.001$), sleep time ($\chi^2=13.22$, $p<.001$), subjective health awareness ($\chi^2=16.99$, $p<.001$), and stress awareness ($\chi^2=41.81$, $p<.001$). In the happy group, 80.4% were non-smokers and 19.6% were smokers. A total of 79.9% slept for more than six hours and 20.1% slept less than six hours. In terms of subjective health awareness, 53.6% of respondents ranked their health as "usual", 33.8% "good", and 12.7% "bad". A total of 77.9% of respondents indicated they felt "less stressed" and 22.1% felt "more stressed".

Factors predicting the subject's happiness

The predictors of a subject's happiness are listed in Table 7. To identify the factors that affect the happiness of middle-aged adults, the dependent variable was set to group 1 with a happy experience and group 0 with no experience. The independent variables included those that were found to have significant differences in the difference test. Socio-demographic characteristics included education level, marital status, household income quintile, and economic activity. Health-related characteristics included smoking, sleep time, subjective health awareness, and stress awareness. To estimate the degree of happiness in middle-aged adults, a composite sample binary logistic regression was performed after confirming the fit of the model ($p<.001$). As a result, independent variables of education level, smoking, subjective health awareness, and stress awareness were selected. The final regression model was Nagelkerke's $R^2=0.324$. In the odds ratio of not being happy, the number of "elementary school graduates" increased by 0.16 times (95% CI=0.40-0.61) than that of "college graduates above college". For the odds ratio of not being happy, the number of "middle school graduates" increased by 0.72 times (95% CI=0.24-2.15) than that of "college graduate and above". In the odds ratio of not being happy, the number of "high school graduates" increased 0.47 times (95% CI=0.23-0.97) than that of "college graduates above college". In the odds ratio of not being happy, the "current smoker" group increased by 0.29 times (95% CI=0.14-0.62) compared to the "non-smoker" group. In the odds ratio of happiness, the subjective health awareness of "good groups" increased 3.41 times (95% CI=1.09-10.70) compared to that of "bad groups". In the odds ratio of happiness, the subjective health awareness of the "usual" group increased by 3.20 times (95% CI=1.43-7.18) compared to that of the "bad" group. In the odds ratio of being happy, the less stressed group was shown to increase by 6.15 times (95% CI=2.99-12.65) compared to the stressed group.

Table 6
Comparison of health-related characteristics of happiness group and non-happiness group (N=1,862)

Variables		Happiness		χ^2 (<i>p</i>)
		Yes Unweighted n (Weight %)	No Unweighted %	
Smoking	Smoker	253(19.6)	27(51.9)	21.55 ($<.001$)
	Non-smoker	1290(80.4)	31(48.1)	
Drinking	Non-drinker	712(42.8)	24(38.5)	0.38 (.537)
	Drinker	830(57.2)	34(61.5)	
Sleep time (hr)	<6	311(20.1)	27(43.6)	13.22 ($<.001$)
	≥ 6	1232(79.9)	31(56.4)	
Physical activity	Inactive	819(54.3)	34(60.7)	0.70 (.403)
	Active	678(45.7)	22(39.3)	
Subjective health awareness	Good	488(33.7)	6(11.4)	16.99 ($<.001$)
	Normal	810(53.6)	24(38.9)	
	Bad	202(12.7)	27(49.7)	
Stress awareness	Little	1190(77.9)	19(30.4)	41.81 ($<.001$)
	Too much	353(22.1)	39(69.6)	
Subjective body type awareness	Underweight	171(11.9)	10(15.9)	1.00 (.368)
	Usual	664(43.5)	19(33.6)	
	Overweight	707(44.6)	29(50.4)	

Table 7
Factors related to happiness relate in middle-aged adults (N=1,862)

Variables		Odds ratio	95% confidence interval	<i>p</i>
m	\leq Elementary school	0.16	0.40-0.61	.022
	Middle school	0.72	0.24-2.15	
	High school	0.47	0.23-0.97	
	\geq College	1.0		
Marital status	Married	2.55	0.92-7.03	.069
	Unmarried	1.0		
Household income quintile	Lower	0.33	0.13-0.87	.055
	Lower- middle	1.28	0.51-3.22	
	Upper- middle	1.34	0.49-3.71	
	Upper	1.0		
Economic	Employed	0.93	0.38-2.28	.869

activity	Not employed	1.0		
Smoking	Smoker	0.29	0.14-0.62	.001
	Non-smoker	1.0		
Sleep time (hr)	<6	0.71	0.37-1.39	.321
	≥6	1.0		
Subjective health awareness	Good	3.41	1.09-10.70	.009
	Usual	3.20	1.43-7.18	
	Bad	1.0		
Stress awareness	Little	6.15	2.99-12.65	<.001
	Too much	1.0		

Discussion

To identify factors that affect the happiness of Koreans, this study used raw data from the 8th National Health and Nutrition Survey (2019) to determine whether socio-demographic and health-related characteristics affect happiness. The happiness rate among middle-aged adults was 96.1%. Out of a total of five points, the subjective sense of happiness of the Korean General Social Survey was 3.98 points for young people, 3.78 points for middle-aged people, and 3.55 points for older people (Kim 2017). According to Kim's study (Kim 2017), happiness decreases depending on the life cycle, but the happiness score of middle-aged people is very high. In the study of Shin (Park et al., 2014), who showed an average of 3.21 out of 5, and Lee (Lee 2017), who identified a minimum of 69 points, a maximum of 169 points, and an average of 116.2 points, found a moderate level of happiness. In Lee's study (Lee 2017), there are many differences between those with high and low levels of happiness. The difference in the degree of happiness in each study was seen as a difference between the subjects. It is also thought that various factors in middle age influence the degree of happiness. The sub-factors of the middle-aged crisis, which had a positive impact on life satisfaction, appeared in the order of present enjoyment, interpersonal emotional factors, and positive life attitude (Chae et al., 2020). It is necessary to compare the factors that affect the degree of happiness in middle-aged adults with high and low levels of happiness. In addition, the happiness rate is thought to be high in the current study because all the subjects who were sometimes happy were included. In future studies, it will be necessary to check the degree of happiness of middle-aged adults using happiness tools. Currently, various happiness studies are being conducted with much interest in the happiness of middle-aged adults. However, there are various factors that make people happy at all ages, but it can be argued that few achieve long-lasting happiness. It seems that education on how to be happy should be provided periodically.

Happiness according to general and health-related characteristics showed statistically significant differences in education level, marital status, household income quintile, economic activity, smoking, sleep time, subjective health awareness, and stress awareness. The results of this study were consistent with those of (Shin, 2021) who demonstrated significant differences in the level of education and subjective health of middle-aged women. Shin revealed that college

graduates are happier than high school graduates. Middle-aged adults' high desire for higher educational status also causes them to focus more on their children. To satisfy middle-aged desire for higher educational status seems necessary to derive appropriate measures, such as increasing hobbies. Continuous health education and health programs should also be activated so that middle-aged adults can take care of their health. According to a study of subjective happiness by life cycle among Japanese and Koreans, absolute household income levels and relative household income are found to be influential among Koreans. Marital status also plays an important role in determining the happiness of the middle-aged adults. Adults who are married, divorced, or separated think that they are, on average unhappy compared to married adults (Kim 2017). Economic and marital conditions can be seen as determining happiness. Meanwhile, married elderly people showed higher family satisfaction and life satisfaction and lower depression than divorced elderly people. In addition, elderly divorced men had the lowest level of family and life satisfaction, while depression was the highest (Kim et al., 2021). It has been shown that there is a difference in happiness depending on whether Korean elderly people live with their family or alone (Lee 2020). For a happy life in old age, it is necessary to ensure marriages last. The results of the current study are in line with those of (Ha et al., 2017), who found higher subjective happiness and lower perceptual stress when sleep quality is good in adults. The sleeping time and its levels affect happiness. To have a happy middle-age, it is necessary to find a suitable way to sleep and relieve stress.

Determining the predictors of happiness of middle-aged adults showed statistically significant results in education level, smoking, subjective health awareness, and stress awareness. In terms of education, the odds of not being happy in elementary, middle, and high school graduate groups were higher than in college or higher graduate groups. The results of this study differs from those of (Kim 2017), who found no significant sense of happiness among those graduating from junior colleges or higher compared to lower high school graduates. It was confirmed that middle-aged adults regretted not learning and had a high desire to do so. To enhance the happiness of middle-aged adults, measures should be devised at the local government level to strengthen and revitalize lifelong education. In addition, further research is needed to check whether there is a difference in happiness among middle-aged adults based on the level of education.

The odds ratios of not being happy was higher in the current smoker group than in the non-smoker group. (Walker et al., 1988) argued that a healthy lifestyle is a simple avoidance of bad health habits, such as smoking and overeating, which have a significant impact on human health and are all human-controlled. The higher the health promotion lifestyle, the lower the level of stress symptoms. Han's study (Han 2005) suggested that smoking can increase stress levels. It can be inferred that higher stress can lower happiness. If smoking in adolescence leads to adult smoking, the burden of disease will increase in the future, leading to huge social and economic costs (Chnag et al., 2010). The subjects knew that smoking is not good, but they did not think that quitting smoking is easy. Continuous interest and various programs should be carried out to help middle-aged adults who smoke succeed in quitting smoking with motivation.

The odds ratios of being happy in good and usual health groups were higher than those in poor health groups. This was consistent with (Kim 2017), who identified an increase in subjective happiness in middle-aged people who thought they were in good health. The better the health, the higher the level of happiness. The overall health status was high in groups that had good economic and current health, did not drink, enjoyed leisure activities, and had no child-rearing burden (Ha et al., 2020). Since various factors affect health conditions in middle-aged people, it is necessary to find and mediate such factors to increase happiness in such individuals. In middle age, people are exposed to various diseases. Due to emotional and psychological factors experienced in middle-age, chronic diseases are more frequent, and metabolism is slowed, resulting in cardiovascular disease caused by weight gain. It is necessary to find appropriate exercise and for individuals to manage their health through steady practice. On the other hand, older adults have been shown to have different feeling of well-being depending on their health conditions (Kim et al., 2021). Consistent health care from middle-age onward may lead to happiness in old age.

Stress awareness indicated that groups that felt less stress were more likely to be happy compared to groups that felt more stress. In middle-aged individuals, people are exposed to a variety of stressors. In addition to events such as death, retirement, and cancer diagnosis (Kim 2016), various stimuli such as loss, anxiety, depression, and frustration occur due to the reorganization of the family and physical and functional degradation of children's independence (Shin 2002). Parenting children before their independence plays an important role in middle-age and problems relating to this may increase stress. For the happiness of parents, intervention in the quality of relationships in which parents respect, care for their children, and try to reduce conflicts is very important (Jo et al., 2018). It is difficult to raise children, but considering the positive aspects before the negative aspects may make people feel greater levels of happiness. In middle-aged Koreans, the happiness of employment groups or self-employed or unpaid family members was found to be lower than that of the unemployed group (Kim 2017). This can be inferred from the fact that middle-aged people feel a lot of stress at work and at home. Even though they may be undergoing various physical and physiological changes, middle-aged adults are under various stresses from their children's problems, parents' problems, and work life. The higher the stress, the lower the sense of happiness is bound to be. According to (Shin et al., 2018), stress response in middle-aged women has a significant effect on happiness. Various education and mediation interventions are therefore needed to enhance stress response methods for middle-aged adults.

Conclusions

This study used health survey data from the 8th National Health and Nutrition Survey (2019) to identify the happiness rate of middle-aged adults and the factors affecting it. In terms of socio-demographic characteristics, happiness showed statistically significant differences in educational level, marital status, household income quintile, and economic activity. Regarding health-related characteristics, statistically significant differences were identified in terms of smoking, sleep time, subjective health awareness, and stress awareness. Happiness predictors of

middle-aged adults were confirmed at the level of education, smoking, subjective health awareness, and stress awareness in middle-aged adults. Therefore, education on health care should be strengthened from middle-age and people should be helped to find ways to relieve stress not only in the workplace in their general lives. It is also necessary to create an environment such as lifelong education that can increase the level of education. A continuous anti-smoking program should be implemented.

Based on the above results, this study offers the following suggestions. First, the National Health and Nutrition Survey identified the degree of happiness based on one item of HINT-8. In future studies, it is necessary to check the degree of happiness using the happiness tool. Second, research is needed on ways to promote happiness across genders by comparing the predictors between men and women. Third, since this study focused on socio-demographic factors and some health-related factors in accordance with secondary data analysis, subsequent studies may suggest a relationship between happiness and other variables, including physical and mental aspects of middle-aged adults.

Conflict of Interest

The author declares no conflict of interest.

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Self

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