

Effects of Health-Related Perception, Physical Activity Practice Rate and Stress on Health-Related Quality of Life for Middle-Aged Women: Based on the Seventh Korea National Health and Nutrition Examination Survey (KNHSNES □-3), 2017, Korea Centers for Disease Control and Prevention

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Abstract

Background/Objectives: The purpose of this study was to identify the factors which may influence a health related quality of life in middle age women in Korea.

Method/Statistical Analysis: This study used the 7th (2017) primitive data disclosed by the National Health Nutrition Examination Survey. Considering the design features of the sample data, it is analyzed with a complex sampling method by reflecting stratas, clusters and weight. The data were analyzed using descriptive statistics of the complex sample, general linear model of the complex sample and multiple regression using the SPSS/WIN 18.0 program.

Findings: As a result of conducting the regression analysis, the explanatory power of above 3 variables was appeared to be 16% including subjective health status ($\beta = -.055$, $p < .001$), Perceived stress ($\beta = .016$, $p = .007$) and subjective body shape ($\beta = .011$, $p = .012$).

Improvements/Applications: This study will be used as basic data for developing nursing intervention programs that can improve health related quality of life of middle age by establishing factors that affect well-being of middle age using variables of multilateral aspects.

Keywords: *Mid-life Women, Quality of life, Perceived health perception, physical activity.*

Introduction

The average life expectancy in 2018 was 82.7 years, 3.5 years longer than the average of 79.2 years in 2007^[1]. The interest in health-related quality of life, which intends to maintain a healthy life in accordance with the life extension. Women, in particular, evaluated their health conditions worse than men^[2]. Women's

health profile was reported to be weaker than men^[3]. In many studies, as women are reported to have a lower quality of health-related life compared to men^[4-5], the management plan should be prepared for the quality of women's health-related life. Middle age is a transition period from adulthood to old age, which is a period feeling psychological crisis due to the decline in physical health, changes in family life cycles and loss of social roles^[6]. These changes and health problems in middle-aged women reduce the quality of life of them^[7].

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Health-related quality of life is the levels of health in terms of physical, psychological and social aspects according to personal experiences, beliefs, expectations, or cognitive levels^[8]. Health-related quality of life is one of the resulting indicators of the health-related

intervention^[9] and can be judged as a result of health-related quality of life for middle-aged people or as a result of nursing interventions. As factors affecting the health-related quality of life, the more obese, the lower the health-related quality of life^[10-11], the higher the social activities^[12] or the better the walking practice rates^[11,13], the higher the health-related quality of life. It was reported that the lower the standard of living^[12,14], the lower the perceived health condition^[15], the higher the stress, the lower the health-related quality of life^[16].

Most studies on the health-related quality of life so far have targeted elderly people^[12,15] or focused on middle-aged menopause symptoms^[17] or related to certain diseases^[18] Therefore, focusing on middle-aged women among the relevant factors reported so far, an integrated analysis of the relevant factors up to date is needed.

Therefore, the study sought to look at how health-related perception, physical activity practice rates and stress affect health-related quality of life. Through this, We would like to present basic data on the development of nursing intervention programs that can systematically manage the health-related quality of life of middle-aged women. The specific purpose of the study is first to identify differences in the health-related quality of life according to the demographic characteristics and related variables of middle-aged women. The second is to identify the effects of health-related perception, stress and physical activity practice rates on health-related quality of life in middle-aged women.

Method

Subjects: This study used the 7th (2017) primitive data disclosed by the National Health and Nutrition Examination Survey in accordance with regulations for disclosure and utilization of primitive data from the Korea Centers for Disease Control and Prevention. The sample design of the National Health and Nutrition Examination Survey was extracted using two-stage stratified cluster sampling^[19]. The number of 7th survey subjects was 8,127. Among them, 1,367 women aged 45 to 64 were the final subjects for this study.

Instruments:

Health-related Quality of life: Health-related quality of life is a tool developed by Euro QOL of group that evaluates from one point to three for five

dimensions: mobility, self care, usual activities, pain/discomfort and anxiety/depression. EQ-5D Index is calculated by multiplying each score in five dimensions by weight value and closer to 1, the higher the health-related quality of life^[20].

Health-related perception: Health-related perception consist of subjective health status and subjective body shape. Regarding the subjective health status, ‘very good, good’ was defined as ‘good’, ‘normal’ as ‘normal’ and ‘bad, very bad’ as ‘bad’. The Subjective body shape was reclassified as ‘obese, ‘average’ and ‘thin’.

Perceived stress: Stress refers to perceived the stress rate, which is that the numerator was categorized into the group that felt ‘very a lot’ and group that felt ‘a lot’ of stress in their daily lives and the denominator was categorized into the group that felt ‘less’ and group that felt ‘a lot’^[19] of stress, with a number calculated as the number of subjects aged 12 or older.

Aerobic physical activity practice rate: The aerobic physical activity practice rate was categorized depending on whether medium-intensity physical activity with more than 2 hours and 30 minutes, or whether high-intensity physical activity with more than 1 hour and 15 minutes, or whether combined with medium-intensity and high-intensity physical activity per week^[19].

Data collection: The data was surveyed by the surveyors from January to December 2017 with interviews and questionnaire.

Ethical consideration: Regarding the National Health and Nutrition Examination Survey, since 2015, the study directly for public welfare has conducted without the review by the Research Ethics Committee in accordance with the Bioethics Law and the Enforcement Rules of the same Law^[19].

Data analysis: To establish the representative nature of the samples for the population, the complex sampling method was used by reflecting the stratas, cluster and weight in consideration of the sample design characteristics of the data^[19]. The data were analyzed using descriptive statistics of the complex sample, general linear model of the complex sample and multiple regression using the SPSS/WIN 18.0 program.

Result and Discussion

General characteristics of subjects: The average age of subjects was 53.95 years old. The average health-related quality of life for all subjects was 0.96. The health-related quality of life showed significant differences in accordance with the income level ($F=5.74$,

$p=.001$), education level ($F=12.90$, $p<.001$), subjective health status ($F=8.06$, $p<.001$), subjective body shape ($F=9.16$, $p<.001$), perceived stress ($F=4.06$, $p<.001$). On the other hand, the aerobic physical activity practice rate ($F=-0.59$, $p=.550$) showed no significant differences in the health-related quality of life [Table 1].

Table 1. General Characteristics and Difference of Health related quality of life according to Characteristics

Characteristics	Categories	N	W% or M±SD	EQ-5D		
				M±SD	Wald F (P)	Contrast
Age (years)		1367	53.95±0.18	.96±0.002		
Income	Low ^a	343	24.2	.94±0.005	5.74 (.001)	a<c a<d
	Medium low ^b	347	24.1	.95±0.005		
	Medium high ^c	334	25.5	.96±0.004		
	High ^d	340	26.3	.97±0.004		
Education	Elementary	239	16.7	.91±0.009	12.90 (<.001)	a<b a<c a<d
	Middle	203	15.1	.95±0.006		
	High	480	40.2	.97±0.003		
	College	335	27.9	.97±0.004		
Subjective health status	Bad	235	18.2	.90±0.008	-8.06 (<.001)	
	Good	1028	81.8	.97±0.002		
Subjective body shape	Under weight ^a	141	11.0	.95±0.011	9.19 (<.001)	a<b
	Average ^b	501	37.3	.97±0.003		
	Overweight ^c	670	51.6	.95±0.003		
Perceived stress	Low	958	71.7	.97±0.002	4.06 (<.001)	
	High	350	28.3	.94±0.006		
Aerobic physical activity practice rate	No	741	59.2	.96±0.003	-.59 (.550)	
	Yes	515	40.8	.96±0.004		

Factors affecting health related quality of life of subjects: To identify the factors affecting health-related quality of life, the income level and education level were adjusted and the general linear model analysis of complex sampling was conducted. The result showed that subjective health status ($\beta = -.055$, $p<.001$), perceived

stress ($\beta = .016$, $p=.007$), subject body shape ($\beta = .011$, $p=.012$) were appeared as influencing factors on health-related quality of life. The explanatory power of these variables on health-related quality of life accounted for 16 percent. The most influential of these variables was subjective health status [Table 2].

Table 2. Factors affecting Health related quality of life*

Variables	Parameter estimate	SE	t	p
Intercept	.964	.008		.000
Aerobic physical activity practice rate = no	-.020	.004	-6.31	.620
Aerobic physical activity practice rate = yes	(reference)			

Variables	Parameter estimate	SE	t	p
Subjective body shape = under wt	-.002	.012	-.15	.879
Subjective body shape = Average	.011	.004	2.53	.012
Subjective body shape = over wt	(Reference)			
Subjective health status = 0(bad)	-.055	.008	-6.75	.000
Subjective health status = 1(good)	(Reference)			
Perceived stress = 0(low)	.016	.006	2.75	.007
Perceived stress = 1(high)	(Reference)			
Income = low	-.004	.007	-.63	.529
Income = medium low	-.006	.006	-.92	.360
Income = medium high	.002	.005	-.29	.767
Income = high	(Reference)			
Education = elementary	-.045	.010	-4.63	.000
Education = middle	-.013	.008	-1.77	.079
Education = high	-.002	.005	-.43	.667
Education = college	(Reference)			
Wald F = 9.54, p<.000, R ² = .16				

*Adjusted for income, education

Discussion

In this study, the effects on the health-related quality of life of middle-aged women were analyzed using the National Health and Nutrition Examination Survey data in Korea. Health-related quality of life is the perception of what one's life is like in a health system that is related to the purpose, expectations, standards and interests of an individual^[8]. In this study, the level of health-related quality of life for middle-aged women was 0.96, higher than the result of 0.91 in women in their 50s^[3] or 0.95 in men and women in their 40s or 0.92 in their 50s^[4]. However, it is difficult to compare directly because the subjects of the study are different and the figures can vary depending on the weighted model applied to the EQ5D Index.

Subjective health status among health-related perception under adjust of income levels and living standards was found to be the most influential variable in health-related quality of life, which is the similar results that the lower the subjective health status of middle-aged women, the lower the health-related quality of life^[17] and subjective health conditions are the factors affecting health-related quality of life^[4,15,18,22]. As the health-related quality of life is directly and indirectly affected

by an individual's health condition, physical, mental, social health status, etc^[8]. It is thought to be the most influential.

The second most influential variable was perceived stress and the lower the perceived stress, the higher the health-related quality of life. This is explained in the same context as the results^[4,16,18] of perceived stress as an influence variable of health-related quality of life among the influencing variables of health-related quality of life of middle-aged women. Middle-aged women experience many conflicts and stresses by experiencing internal and external life events while playing the main role of family members, resulting in the low quality of life^[16]. As stress increases, the quality of life decreases due to decreased physical and mental functions and decreased social-psychological adaptability^[4].

The Third influential variable in health-related quality of life was subjective body shape, which showed high levels of health-related quality of life in average-sized people. This is similar to the result that obesity was a factor influencing health-related quality of life^[10]. In some studies, It is a contrary result to the result that there was no difference in the health-related quality of life^[12] in accordance with the result of BMI, but it is thought

that it was difficult to objectively evaluate satisfaction and dissatisfaction with the BMI value. For that reason, it did not appear as an influencing factor when the BMI value was selected as a variable. As the health-related quality of life depends on how individuals perceive their body shapes rather than on the figure itself, such as BMI, it is thought that the satisfaction of body shape in this study was a variable affecting the health-related quality of life.

Aerobic physical activity practice rate has been shown not to affect health-related quality of life, which differs from the results of health-related life quality studies^[11,13]. This is believed to have not affected the health-related quality of life as the subjects of this study are middle-aged women, not feeling much of the limitation of physical activity compared to the elderly. There were significant differences in health-related quality of life depending on general characteristics, education levels and income levels. This is similar to the study results^[10,12,18,21], which showed that the health-related quality of life is the influencing factor in accordance with the education levels. It is believed that education affects the economic, psychological and social aspects of our lives. It is similar to the study results^[12] that showed that the standard of living is a factor affecting health-related quality of life. Low economic standards do not satisfy the needs for survival, as the satisfaction with life decrease through comparison with people around.

This study is significant in the sense that it is representative as it utilized the country's primitive data and that it compared and analyzed factors related to health-related quality of life in middle-aged women. Therefore, in order to improve the health-related quality of life in middle-aged women, the development of intervention programs such as education and stress management programs that can affect health perceptions and changes in health behavior for body shape management are necessary.

Conclusion

This study sought to identify the relative importance of the influencing factors by identifying those of health-related quality of life for middle-aged women. Factors affecting the health-related quality of life for middle-aged women include subjective health perception, stress and subjective body shape and these variables explain 16 percent of health-related life quality. Therefore,

management of these variables should be considered in strategies for improving the health-related quality of life for middle-aged women. It is significant in the sense that the results of this study compare and analyze factors related to the health-related quality of life for middle-aged women in Korea. However, due to the low explanatory power for the health-related quality of life, it is suggested to explore factors affecting the health-related quality of life not included in this study and to identify direct and indirect effects by building models.

Ethical Clearance: Not required

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Conflict of Interest: Nil

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