

Factors Influencing Health-related Quality of Life among Male Workers in Korea

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Abstract

The purpose of this study was to provide data of nursing intervention development to develop quality of life related health for male workers by consciousness of influencing factors of quality of life. The subjects were 175 male workers at A, C, D, K, and I cites for descriptive statistics. The data were collected from March 5, 2014 to March 28 by questionnaire survey and analyzed by descriptive statistics, t-test, ANOVA, Pearson's correlation coefficients, and stepwise multiple regression. The results of study were to show that male office workers of type D personality were 55 people (31.8%). There were significant differences of the degree of life habit, self-esteem, job stress and health-related quality of life between group of type D personality and group of type non-D personality. The correlated factors of male office workers revealed positive correlation for health related quality of life and life habit ($r=.47$, $p<.001$), negative correlation for type D personality ($r=-.64$, $p<.001$), and medium negative correlation for job stress ($r=-.44$, $p<.001$). The result of multiple regression analysis for factors influencing of health related quality of life was to show 40.4% ($\beta=-.35$, $p<.001$) for health related quality of life for type D personality, and 7.2% for self-esteem ($\beta=.28$, $p<.001$), 2.5% for life habit ($\beta=.17$, $p=.007$), and 1.5% for job stress ($\beta=-.16$, $p=.010$). In this respect, these variables presented 51.7% of health related quality of life. Therefore, factors like personality, self-esteem, life habit, and job stress in order to develop health-related quality of life should be considered. The study especially showed type D personality as a main effect. One need to develop an effective plan for dealing stress by psychological intervention that may help to regulate negative emotions.

Keywords: Male, Psychological stress, Personality, Quality of Life, Self-concept, Workers

1. Introduction

As of December, 2013, men account for 58% of the total population that is economically active (15231000 people), which is slightly more than half of the economically active population¹. Compared to the past, men take on more work and increasingly work until late or on weekends. In order to survive the fierce competition, focus on work is required, undermining the physical and mental health of men. The stress felt by Korean office workers is among the highest of all OECD countries. The stress level felt by Korean office workers is higher than that of both American and Japanese

office workers, while their satisfaction with work is among the lowest of all OECD members, hovering around 69%. The happiness index of Koreans ranks 27th out of 36 OECD countries².

According to a survey conducted on 1000 office workers, 82.4% responded that their health had been adversely affected due to extreme stress at work and that chronic fatigue was the most common symptom. Annoyance, depression, headaches, muscle pain and disc disorders, and digestive disorders were the most commonly complained about health issues³. Satisfaction with life was lower in men than in women⁴ with a sense of threat being felt due

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to the stress to maintain their status at work and the huge responsibilities they bore professionally. Therefore, male office workers have a very high likelihood of experiencing physical or mental health-related issues, which lead to an undermined satisfaction with life or quality of life. Quality of life is the subjective satisfaction and happiness one feels in relation to the cognitive and emotive aspects that perceive the objective factors in life⁵. Quality of life related to health means an assessment of physical, mental, social and spiritual happiness⁶. This is a component that not only directly affects happiness but also an individual's physical, mental and psychological health⁷. Therefore, health-related quality of life for male office workers signify a subjective assessment of how well one controls the symptoms of disease and maintain one's health while carrying out one's role at work. It is often used as a synonym for life satisfaction. In order to increase the quality of life for male office workers, first there is a need to identify the factors that affect it.

Preceding studies on quality of life or life satisfaction show that more than half of male office workers deal with their stress through smoking or drinking⁸ but such coping methods lead to inappropriate lifestyle habits and can cause hypertension, diabetes, cardiac arrest, strokes, chronic obstructive pulmonary disease or an alcoholic liver. These diseases in turn undermine quality of life and therefore can be factors related to quality of life.

In regards to work, it has been shown that the higher the work stress, the lower the self esteem⁹ and that stress affects mental health¹⁰. Lee¹¹ analyzed the factors that affect quality of life in middle aged men and found that self esteem was identified as having a strong correlation with an explanatory power of 39%.

Of personality types, D type individuals showed an overall low score for health promoting activities including health responsibility, physical activity and nutrition, spiritual growth and interpersonal stress management¹². Patients with D type personality had a lower quality of life than others¹³. Moreover, office workers were experiencing high work stress that caused negative emotional states such as depression, while the mortality rate of men in their 40s or higher was found to be among the highest around the world¹⁴.

As such, this study uses male office workers as subjects to analyze the correlation between lifestyle habits, self esteem, D type personality and work stress thereby identifying the factors that affect health-related quality of life. By doing so, we expect to provide the basic data for developing a nursing intermediation method for better quality of life of male office workers.

The purpose of this study is to analyze the factors that affect health-related quality of life in male office workers and to identify the correlation between quality of life and male office workers' lifestyle habits, self esteem, D type personality, and work stress.

The specific objectives of this study are as follows:

1. Compare the distribution of D type personality among male office workers and their according lifestyle habits, work stress and health-related quality of life.
2. Identify male office workers' lifestyle habits, self esteem, D type personality, work stress and health-related quality of life.
3. Compare the health-related quality of life in accordance with the general characteristics of male office workers.
4. Analyze the relation between male office workers' lifestyle habits, self esteem, D type personality, work stress and health-related quality of life.
5. Identify the factors that affect male office workers' health-related quality of life.

2. Methodology

2.1 Study Design

This study is a descriptive study conducted to identify the factors that affect the health-related quality of life among male office workers.

2.2 Study Subjects

Subjects were sampled from cities C, D and I. A total of 173 male office workers who are literate, able to communicate and who agreed to participate in the study were selected.

The number of subjects was calculated using the G Power 3.1.7 program¹⁵. The number of samples required to maintain a predictive factor of 4, an effect size of .10, a significance level of .05 and a power test of .90 was calculated to be 159. Given the dropout rate, 173 were estimated to be a sufficiently large enough sample size.

2.3 Study Tools

2.3.1 Lifestyle Habits

The health promotion assessment scale of Wilson and Ciliska¹⁶ which was translated by Ro¹⁷ into a lifestyle measurement tool was used. Four questions on dietary habits, 1 question on weight control, 1 question on

smoking habits, 2 questions on addiction to caffeine or substances, 2 questions on alcohol drinking, 2 questions on sports and leisure activities, 2 questions on safety awareness, 1 question on sleep, 1 question on stress, 2 questions on personality type, 2 questions on depression or instability, 2 questions on job satisfaction and 3 questions on closeness with friends and family made up a total of 25 questions in the survey. Using a five point Likert scale, a higher average score was designed to mean a healthier lifestyle habit. When the tool was first developed by Wilson and Ciliska¹⁶, the reliability coefficient was Cronbach's $\alpha=0.88$, while in the study by Ro¹⁷ it was 0.85. In this study, Cronbach's $\alpha=0.64$.

2.3.2 Self-esteem

The self-esteem scale developed by Rosenberg in 1971¹⁸ and later translated by Jeon¹⁹ was used as a tool. This scale is composed of 10 questions, with 1 point indicating 'not at all' and 4 points indicating 'very much so' using a 4 point Likert scale. Negatively asked questions were calculated in reverse order. The higher the average score, the higher the self esteem is indicated. In the study by Jeon¹⁹ reliability was Cronbach's $\alpha=0.62$ while in this study, Cronbach's $\alpha=0.83$.

2.3.3 D Type Personality

The Type D scale-14 (DS14) developed by Denollet²⁰ and later translated by Lim et al.²¹ into a Korean version (The Korean Type D scale-14, the Korean DS14) was used. It consists of a total of 14 questions using a 5 point Likert scale from 0 points to 4 points. Seven questions covered negative emotions experienced depending on the situation and time, and 7 questions covered the tendency to suppress one's emotion or behavior in social interactions to avoid criticism, making it a total of 14 questions. For each question, 'no' was given 0 points while 'yes' was given 4 points on a 5 point Likert scale. When the total score for each category was 10 points or more, then it is estimated that the individual has a D type personality. When the tool was developed, the reliability coefficient for the negative emotions category was Cronbach's $\alpha=0.88$, and Cronbach's $\alpha=0.86$ for the social deterrence category, while in the Korean version it was 0.86 for the negative emotions and 0.80 for social deterrence. In this study, it was 0.86 for negative emotions and 0.84 for social deterrence.

2.3.4 Work Stress

The Korean Society of Occupational Stress: KOSS developed by Chang et al.²² was used as a tool. A total of 24 questions were posed, among which were 4 on work requests, 4 on work autonomy, 3 on interpersonal conflict, 2 on job instability, 4 on organizational structure, 3 on the inadequacy of compensation and 4 on corporate culture. Using a 4 point Likert scale, 'Not at all' was given 1 point while 'very much so' was given 4 points. A higher score indicates a higher stress level. In the study by Lee, Lee, Soh, & Choi²³, reliability coefficient was Cronbach $\alpha=0.82$ while in this study it was 0.62.

2.3.5 Health-related Quality of Life

The tool developed by Dunbar, Stoker, Hodges, & Beaumont²⁴ was summarized into 23 questions by Stoker, Dunbar & Beaumont²⁵, which was then translated by Yoon, Kook, & Lee²⁶. The translated tool was used in this study. The tool presents three types of mental status; self now, ideal self, and sick self. It consists of a total of 23 questions in 8 categories which are mental happiness, physical happiness, mood, social relationship, internal and external controls, activities/interests/hobbies, job/profession and finance. The answers were given scores of 1-10 points, with the higher score indicating a higher quality of life. The reliability coefficient in the study by Yoon, Kook, and Lee²⁶ was Cronbach's $\alpha=0.90$ while it was 0.91 in this study.

2.4 Data Analysis

The collected data was analyzed using SPSS Win 18.0 program.

1. For the distribution of general characteristics and D type personality among male office workers, the actual figure and percentage were calculated.
2. For the lifestyle habits, self esteem D type personality, work stress and health-related quality of life, the mean and standard deviation were calculated.
3. For the difference between the D type personality group and the non-D type personality group in terms of lifestyle habits, self esteem, work stress and health-related quality of life, a t-test was conducted.
4. For the difference in quality of life across different general characteristics of male office workers, a t-test and ANOVA were conducted, with Scheffe test being used for post verification.

5. The relation between male office workers' lifestyle habits, self-esteem, D type personality, work stress and their quality of life was expressed through Pearson's correlation coefficient.
6. For the factors that affect health-related quality of life among male office workers, stepwise multiple regression was used.

3. Study Results

3.1 General Characteristics of Male Office Workers

The general characteristics of male office workers are as shown in (Table 1). In terms of age, out of the total of 173 men, those in their 30s accounted for the majority at 39.9% (25 people), followed by those in their 40s at 32.9% (57 people), age 29 years or younger at 14.5% (25 people), and those of age 50 or older at 12.7% (22 people). In terms of religion, those who said they are atheists accounted for 62.4% (108 people). In terms of marital status, more than half or 70.5% (122 people) lived with their partners. In terms of the size of the family, 2-3 people was the predominant size at 71.1% (123 people), while the majority of respondents had an educational background of high school graduation or higher with 95.4% (165 people) answering that they fit that criterion. In terms of profession, 46.8% (81 people) worked in manufacturing, and office workers and highly professional service jobs accounted for 24.3% (42 people) each. In terms of job experience, 1-5 years was the most common at 26.6% (46 people), followed by 15 years at 23.7% (41 people), and 5-10 years at 21.4% (37 people). In terms of monthly income, those with an income of 2 million-3 million won accounted for 45.7% (79 people), those with more than 3 million Won accounted for 32.9% (57 people), and those with 2 million or less accounted for 21.4% (37 people). 86.1% (149 people) answered that they did not have a disease and more than half or 59.5% (103 people) responded that their health status was average.

Table 1. General characteristics of male office workers (N=173)

Characteristics	Categories	N (%)
Age(yr)	29 years or less	25(14.5)
	30-39	69(39.9)
	40-49	57(32.9)
	50 years or more	22(12.7)

Religion	Yes	65(37.6)
	No	108(62.4)
Marital status	Live together	122(70.5)
	Death of spouse, divorce, unmarried or separated	51(29.5)
Number of family members	0-1	23(13.3)
	2-3	123(71.1)
	4-5	27(15.6)
Education	Middle school or lower	8(4.6)
	High school or higher	165(95.4)
Profession	Manufacturing	81(46.8)
	Highly skilled professional	42(24.3)
	Office job	42(24.3)
	Services	3(1.7)
	Others	5(2.9)
Job experience	1 year or less	23(13.3)
	1-5 years	46(26.6)
	5-10	37(21.4)
	10-15	27(13.9)
Monthly income	15 years or more	41(23.7)
	2 million Won or less	37(21.4)
	2-3 million Won	79(45.7)
Disease	3 million Won or more	57(32.9)
	Yes	24(13.9)
Health status	No	149(86.1)
	Good	64(37.0)
	Average	103(59.5)
	Bad	6(3.5)

3.2 Comparison of D Type Personality of Male Office Workers

There were 55 subjects (31.8%) who had a D type personality, defined as having a total point of 10 points or more for negative emotions and social deterrence. Non-D type personality subjects were a total of 118 people (68.2%).

Comparing the D type personality group and the non-D type personality group, the D type group had a higher level of tendency towards negative emotions ($t=-12.99$, $p<.001$) and a higher degree of social deterrence ($t=-15.53$, $p<.001$) with the difference being statistically significant (Table 2).

Table 2. Comparison of D type personality of male office workers

	D type personality group Mean(SD)	Non-D type personality group Mean(SD)	t(p)
Negative emotions	14.06(3.75)	5.32(4.27)	-12.99(<.001)
Social deterrence	13.82(3.30)	4.90(3.61)	-15.53(<.001)

3.3 The Difference in Male Office Workers' Lifestyle Habits, Self-esteem, Work Stress and Health-related Quality of Life in Accordance with D Type Personality

There was a statistically significant difference between the D type personality group and the non-D type personality group in terms of lifestyle habits ($t=5.18, p<.001$), self-esteem ($t=5.79, p<.001$), work stress ($t=-2.94, p=.004$) and health-related quality of life ($t=6.81, p<.001$). It showed that the D type personality group had worse lifestyle habits, lower self esteem, more work stress and a lower health-related quality of life (Table 3).

Table 3. Male office workers' lifestyle habits, self esteem, work stress and health related quality of life in accordance with their D type personality

Variables	D type personality Mean(SD)	Non-D type personality Mean(SD)	t(p)
Life habits	3.31(0.33)	3.57(0.31)	5.18(<.001)
Self-esteem	2.74(0.37)	3.07(0.34)	5.79(<.001)
Job stress	2.47(0.27)	2.35(0.24)	-2.94(.004)
Health-related quality of life	6.05(1.11)	7.32(1.15)	6.81(<.001)

3.4 Male Office Workers' Lifestyle Habits, Self-esteem, D Type Personality, Work Stress and Health-related Quality of Life

Male office workers' lifestyle habits, self esteem, D type personality, work stress and health-related quality of life are as seen in (Table 4). Lifestyle habits was high at 3.49 points, while self esteem was lower than average at 2.96 points. The mean of D type personality was low at 1.13 points and work stress was slightly higher than the average at 2.39 points. Health-related quality of life was 6.91 points which is higher than average.

Table 4. Male office workers' lifestyle habits, self esteem, D type personality, work stress and health-related quality of life

Variables	M±SD	Range
Lifestyle habits	3.49±0.34	1-5
Self-esteem	2.96±0.38	1-4
D type personality	1.13±0.76	0-4
Work stress	2.39±0.26	1-4
Health-related quality of life	6.91±1.28	1-10

3.5 Difference in Health-related Quality of Life in Accordance with Male Office Workers' General Characteristics

The difference in male office workers' health-related quality of life in accordance with their general characteristics is as seen in (Table 5). There was a statistically significant difference in quality of life in terms of the number of family members ($F=4.60, p=.011$), education ($t=-4.80, p<.001$) and health status ($F=7.69, p=.001$). The health-related quality of life was higher in groups with two or more family members than those with one or fewer family members. Quality of life was also higher in those with a high school degree or higher than those of a lower educational background. The group that answered they had good health had a better quality of life than those who answered with bad health, and those who answered with average health had a higher quality of life than those who said their health was bad. However, there was no statistically significant difference between groups in terms of age, religion, marital status, profession, job experience, monthly income or disease.

3.6 Relation of Health-related Quality of Life with Male Office Workers' Lifestyle Habits, Self-esteem, D Type Personality, and Work Stress

The relation of health-related quality of life with male office workers' lifestyle habits, self esteem, D type personality, and work stress is as seen in (Table 6). Male office workers' health-related quality of life and lifestyle habits had a positive correlation of average degree ($r=.47, p<.001$) which was statistically significant, while self-esteem ($r=.58, p<.001$) showed a strong positive

Table 5. Difference in health-related quality of life in accordance with general characteristics of male office workers

Characteristics	Category	M±SD	t or F(p)	Scheffe test
Age(yr)	29 years or younger	6.92±1.38	0.24 (.872)	
	30-39	6.91±1.28		
	40-49	6.84±1.23		
	50 years or older	7.11±1.36		
Religion	Yes	6.95±1.32	0.32 (.746)	
	No	6.89±1.27		
Marital status	Cohabitation	7.04±1.24	1.95 (.053)	
	Separation by death, divorce, unmarried, living separately	6.62±1.34		
Number of family members	0-1 ^a	6.18±1.04	4.60 (.011)	a < b
	2-3 ^b	7.03±1.28		
	4-5 ^c	7.03±1.28		
Education	Middle school or less	6.07±0.44	-4.80 ($<.001$)	
	High school or more	6.96±1.29		
Profession	Manufacturing	6.77±1.37	0.88 (.476)	
	Highly skilled professional	6.95±1.20		
	Office work	7.20±1.11		
	Services	6.71±2.04		
Work experience	Others	6.65±1.49	0.53 (.713)	
	1 year or less	6.97±1.47		
	1-5 years	6.87±1.35		
	5-10	6.70±1.32		
	10-15	6.95±1.16		
Monthly income	15 years or more	7.11±1.14	2.02 (.135)	
	200 million won or less	6.86±1.52		
	2.01-3 million won	6.75±1.24		
Disease	3.01 million Won or more	7.19±1.13	0.42 (.672)	
	Yes	6.93±1.30		
Health status	No	6.81±1.16	7.69 (.001)	a > b, c b > c
	Good ^a	7.27±1.18		
	Average ^b	6.78±1.28		
	Bad ^c	5.40±0.94		

correlation that was statistically significant. D type personality ($r=-.64$, $p<.001$) had an inverse correlation that was statistically significant and work stress ($r=-.44$, $p<.001$) had an average level inverse correlation that was

statistically significant. Male office workers' quality of life was higher when their lifestyle habits were better, self esteem was higher, the more they were not D type personality and when their work stress was lower.

Table 6. Relation of health-related quality of life with male office workers' lifestyle habits, self-esteem, D type personality, and work stress

	Lifestyle habits r(p)	Self- esteem r(p)	D type personality r(p)	Work stress r(p)	Quality of life r(p)
Lifestyle habits	1				
Self- esteem	.36 ($<.001$)	1			
D type personality	-.46 ($<.001$)	-.56 ($<.001$)	1		
Work stress	-.31 ($<.001$)	-.36 ($<.001$)	.39 ($<.001$)	1	
Quality of life	.47 ($<.001$)	.58 ($<.001$)	-.64 ($<.001$)	-.44 ($<.001$)	1

3.7 Factors that Influence Health-related Quality of Life in Male Office Workers

In order to identify the factors that influence health-related quality of life in male office workers, multiple regression analysis was undertaken. Of the general characteristics of subjects, their lifestyle habits, self esteem, D type personality and work stress, factors that showed statistically significant difference, that is, number of family members, education and health status were treated as dummy variables.

Before starting the multiple regression analysis, multicollinearity, independence, normality and homoscedasticity were tested. The test for multicollinearity showed that the tolerance was higher than 0.1 at 0.587-0.802 and Variance Inflation Factor was also smaller than 10 at 1.247-1.704. The state index was 1.000-24.819 and smaller than 30. Therefore the problem of multicollinearity could be excluded. The test for independence of error showed the Durbin-Watson value to be 2.034 which is close to 2, indicating that there was no self-relation. A residual analysis showed that the range of residuals that had been standardized was -2.297-2.468, meeting the criterion for homoscedasticity and normality. Multiple regression analysis shows that D type personality had an explanatory power of 40.7% ($\beta = -.35, p < .001$) for quality of life, followed by self-esteem at 7.6% ($\beta = .28, p < .001$), lifestyle habits at 2.6% ($\beta = .17, p = .031$), and work stress at 2.0% ($\beta = -.16, p = .008$). These variables explained 51.7% of health-related quality of life (Table 7).

Table 7. Factors influencing health-related quality of life in male office workers

Variables	B	SE	β	t	p	R ²
Constant	4.52	1.37		3.30	.001	
D type personality	-.59	.12	-.35	-5.03	<.001	.407
Self-esteem	.97	.22	.28	4.22	<.001	.483
Lifestyle habits	.62	.23	.17	2.72	.007	.509
Work stress	-.78	.30	-.16	-2.62	.010	.529

Adj. R²=51.7, F=47.09, P<.001

4. Discussion

This study sought to provide a basic set of data for the development of nursing mediation that can help improve the health-related quality of life among male office

workers, by identifying the factors that influence their quality of life. The major findings were discussed as follows.

The difference in health-related quality of life in accordance with male office workers' general characteristics existed between different number of family members, educational background and health status. Those with two or more family members had a higher quality of life than those who didn't. Such findings could not be found in preceding studies and therefore direct comparison was difficult but according to the study conducted by Seo²⁷, Kim, Lee, & Sok²⁸ on senior citizens living alone and living with others, family support and bonds were verified to have an effect on health-related quality of life, confirming this study's findings. Family can be seen as an important factor in terms of offering a support system that can in turn affect health-related quality of life. Therefore, it is necessary to provide male office workers with one or fewer family members a support system within their work organization to make up for their lack in social support and bonding. Male office workers with an education of high school or more had better quality of life than those who had middle school or less. This is in line with the study conducted by Sohn⁷ on working women, and the study by Son²⁹ on married working women. Businesses will have to promote close cooperation with academia to develop programs where employees can learn more. Better health among male office workers also meant higher quality of life. This was the same result as that of the study by Eom & Lee³⁰ conducted on subjects who worked at health-related public organizations, and the study by Sohn⁷ on female workers. Given the similar results across numerous studies, it appears that one's perception of health is a major factor influencing health-related quality of life. Therefore, criteria for perception of health must be presented more clearly and tools need to be developed for a more accurate subjective assessment of one's health⁷.

In the correlation between quality of life and various factors, a stronger D type personality and more work stress meant lower quality of life while better lifestyle habits and higher self esteem meant better quality of life. D type personality refers to distressed personality and stands for the personality type based on negative emotions and social deterrence. The determining factor for such distressed personality is whether one individual shows both characteristics³¹. A stronger D type personality in male office workers meant that their health-related quality

of life was lower. This was a similar result to that in the study by Cha, Im, & Cho¹³ and by Son & Song³². In all categories of physical realization, paranoia, sensitivity in interpersonal relations, depression, instability, hostility, agoraphobia, obsessive compulsive disorder and mental disorder D type personality people had higher levels than non-D type personality people¹³. The instability level or physical exhaustion of D type personality people was higher by as much as 7 fold, and the level of depression was also higher by as much as 7.4 fold. This indicates an exacerbation of emotional states and also a negative effect on physiological indicators such as blood pressure, pulse and cortisol levels, which in turn undermine the quality of life³³. In the study by Son²⁹, they were also proven to have an effect on quality of life, supporting this study. When discussing health-related quality of life, D type personality must be given priority. The negative emotions felt by D type personality people can include discomfort, instability and nervousness. But in addition, it should be asked if the person has a critical viewpoint. Since a critical viewpoint shows how a certain object is perceived, it can mean that D type personality people can also have a negative viewpoint towards their own health¹². By using a personality test for D types at work, more awareness of one's own personality type should be raised at work so that help can be offered to reduce the negative emotions while enriching positive emotions. When providing a nursing mediation program, such personality characteristics must be taken into account. In particular, in this study, those with a D type personality accounted for 31.8% (55 people) of male office workers, which is a higher percentage than the 24.3% in the study on middle aged office workers conducted by Lim, Noh, & Kim [34]. It is of similar level to the 34.8% found in the study by Lim et al.²¹ on women and the 57.9% found in the study on male drivers of inner city buses conducted by Kim^{35,36}. There is a need to promote mediation methods for personality improvement and repeated research for male office workers who have D personalities and whose stress and quality of life are negatively affected by such personality. A higher work stress among male office workers meant a lower quality of life. In the study by Lee, Heo, Kim, Kim, Kim & Rho³⁷ and the study by Eom & Lee³⁰, there was an inverse correlation which is in line with the findings of this study. Work stress had a correlation with drinking³⁸, and the drinking quantity had an effect on the amount of smoking¹⁴ which negatively affected lifestyle habits.

Moreover, work stress had a correlation with fatigue³⁹, had an effect on depression¹⁴, was also correlated with liver diseases and hyperlipidemia⁴⁰, and was correlated with cardiac or brain-related diseases⁴¹. Likewise, work stress served as a factor that undermined the individual's health and quality of life, which supports the findings of this study. From the corporate or social perspective, work stress increases the cost of disasters or medical expenses. The ministry of health and welfare announced that the cost of mental diseases for the year 2010 that includes direct treatment costs as well as the indirect costs incurred by missed work days or reduced inefficiency, amounted to 2.01% of the nation's GDP, or 23 trillion 500 million Won. Moreover, stress can also progress into depression or social maladjustment symptoms⁴². Therefore stress must not just be managed on an individual level but employers and local communities must have a proactive management system. Since stress affects mental health, an expert counselor must be installed to conduct health diagnostics that can help prevent and manage issues. Policies to enjoy leisure time to help manage stress, information that helps their hobbies or various training opportunities are also needed. Better lifestyle habits were correlated with better quality of life. Not only their physical and mental symptoms were less prominent, but overall complaints about symptoms were fewer, indicating that health was overall better⁴³. In the study by Park & Lee⁴⁴ that addressed the correlation between lifestyle habits and quality of life, there was a statistically significant correlation that supports this study's findings. Lifestyle habits, in particular drinking in moderation, not smoking, regular exercise, good sleeping habits and weight management are deemed to be important factors and preventing and managing chronic degenerative diseases⁴⁰. Inappropriate lifestyle habits can lead to chronic degenerative diseases such as strokes, hypertension, diabetes or cardiac diseases but can also increase the incidence rate of metabolic symptoms, which in turn increases the mortality rate and decreases quality of life. Therefore more measures to address lifestyle habits are needed.

Self esteem is an important factor in people's behavior, adjustment, happiness and unhappiness, and mental health. A higher self esteem showed a higher quality of life. In the study by Choi & Lee⁴⁵ conducted on men, those with a low self esteem were vulnerable to depression when faced with stress and this was triggered by a cognitive characteristic. This indicates that if a male office worker

maintains a high level of self esteem then his perception, control and dealing with the personal, social, mental and physical challenges can be different⁴⁶. Therefore, male office workers must be offered programs that can help understand themselves better and develop self esteem. After the program is presented, changes in their self esteem must be observed regularly. A management system that can improve the self through self development programs will also be needed.

Explanatory variables for the quality of life among male office workers had significant variables such as D type personality, self esteem, lifestyle habits and work stress, with their explanatory power being 51.7%. Of the variables, D type personality in particular, had a strong influence in male office workers' quality of life. This is a similar result to that of the study by Son²⁸. D type personality was confirmed to have a big effect on making it difficult to form social relationships while undermining quality of life¹³. In particular, the D type personality had a low satisfaction with the present life while subjectively reported health was low. They were also vulnerable to stress⁴⁷. While there are many studies identifying the D type personality, there are not enough studies on methods to improve the D type personality. Therefore over the longer term, the D type personality will have to be analyzed and the people with such personality can be encouraged to make efforts for change. In addition, regular training can help understand the level of change in negative emotions and social deterrence, provide a theoretical basis and help present mediation programs by identifying the D type personality.

5. Conclusion and Suggestions

The study shows that the average score for health-related quality of life among male office workers had an average of 6.91 points, D type personality accounted for 31.8% (55 people), and that between the D personality group and the non-D type personality group, there was a difference in lifestyle habits, self esteem, work stress and quality of life. Male office workers showed 3.49 points for lifestyle habits, 2.96 points for self esteem, 1.13 points for D type personality holders, 2.39 points for work stress and 6.91 points for health-related quality of life. Of general characteristics, male office workers' number of family members, education and health status showed different levels in quality of life. Those with 2-3 family members,

those with a high school degree or higher and those with a better health status had a higher quality of life. Male office workers' lifestyle habits and self esteem had a positive correlation with quality of life, while D type personality had an inverse correlation with work stress. One of the most important factors that can affect the quality of life in male office workers is the D type personality, with others such as self-esteem, lifestyle habits and work stress all influencing it a little bit. Self esteem, lifestyle habits and work stress all had an effect, too. The four factors explained 51.7% of the quality of life among elderly male people. Therefore, personality conversion programs should be developed so that male office workers will not develop into D type personality that is characterized by negative emotion and social deterrence. Such programs can also help to ensure that neither negative emotions nor social deterrence has a point of 10 or higher. In order to improve the quality of life among male office workers, they must not only convert their personalities but also promote self esteem and maintain healthy lifestyle habits. Work stress must also be smoothly managed. To that end, experts such as nurses dispatched to corporations must develop mediating programs and apply them so that quality of life can be raised in our daily lives. Moreover, a representative or manager of male office workers must show leadership so that administrative and financial support can be given properly. A health checkup and diagnosis system, and a continuous program management system are much needed. In addition, since there is a lack of studies on health related quality of life among male office workers, and more research on health-related quality of life is called for as the explanatory power is only 51.7%, more studies identifying further the effects of various factors will have to be implemented.

6. References

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