Indian Journal of Science and Technology, Vol 9(8), DOI: 10.17485/ijst/2016/v9i8/72686, February 2016
ISSN (Print) : 0974-6846
ISSN (Online) : 0974-5645

Factors Influencing Quality of Life among Cancer Patients in South Korea

Sun Ju Lee and Hee Kyung Kim*

Department of Nursing, Kongju National University, South Korea; jabezlee@hanmail.net, hkkim@kongju.ac.kr

Abstract

Background/Objectives: Cancer is No. 1 cause of death among Koreans. The aim of this study is to analyze factors influencing quality of life among cancer patients. **Methods/Statistical analysis**: The descriptive survey study objects are 96 cancer patients. The questionnaire used for the survey included health promotion behavior measurement tool, Korean version of Connor-Davidson Resilience Scale (CD-RISC), helplessness scale, and Korean version of EORTC QLQ-C30. Quality of life was divided into three sub-areas: general health condition/quality of life, functional quality of life, and symptom-related quality of life. Correlation analysis and stepwise regression analysis were performed on the data. **Findings:** The average score in health promotion behavior of respondents was 2.35 of maximum 4. The score in resilience was 90.07 of 125. The score in helplessness was 2.01 of 4. There were some differences in quality of life affected by demographic characteristics of respondents. Functional quality of life was significantly different depending on age and education. General health/quality of life has positive correlations with health promotion behavior, and resilience, but negative correlation with helplessness. Functional quality of life has positive correlations with health promotion behavior, and resilience, and negative correlation with helplessness. Symptom-related quality of life has negative correlations with health promotion behavior and resilience, and positive correlation with helplessness. That is, the higher health promotion behavior and resilience go up, and the more helplessness goes down, level of quality of life goes up. Health promotion behavior and helplessness explained 27.8% of functional quality of life, and 22.5% of symptom-related quality of life. Thus, the two variables affect quality of life for cancer patients**. Applications/Improvements:** It is necessary to identify factors influencing quality of life among cancer patients to increase the effects of intervention to reduce helplessness and explaining power to improve health promotion behavior.

Keywords: Cancer Patients, Health Promotion Behavior,Helplessness, Resilience, Quality of Life

1. Introduction

Cancer is No. 1 cause of death among Koreans, and, according to the standardized incidence rate of cancer, it was 219.5 per 100,000 persons in 1999, but it increased by 3.5% to 319.5 in 2012. From 1996 to 2000, the average 5-year survival rate for patients of all kinds of cancer was 44%, which rose to 68.1% from 2000 to 2008[1]

If detected in early stages and treated, over 90% of cancers can be completely cured[2]. Traditional treatment methods for cancer are surgery, anti-cancer chemotherapy, and radiotherapy. But, nowadays, to maximize treatment effects, 2~3 kinds of other treatment methods such as high-frequency heating treatment, immunotherapy, and vitamin therapy, etc. are also used. Despite such situational crises, not all the patients suffer from crises. Some patients overcome difficult situations and adjust themselves positively[3] When placed in difficult situations, some people are able to suppress negative emotions and cope with them effectively. It is called resilience[4]. It varies depending on socio-psychological capacities of people[4]. Resilience consists of protective factors in internal and environmental dimensions, and those factors work on adverse circumstances, contributing to reducing negative outcomes, and generating positive outcomes[5]. Accordingly, if a cancer patient pos-

*Author for correspondence

sesses good resilience, it can give rise to positive effects in improving quality of life.

As the treatment period becomes prolonged, patient's feeling of helplessness increases[6]. Miller said that if physical, psychological, and social stresses repeatedly continue, those who suffer them become lethargic, and, get damages in motivational, cognitive, and emotional aspects, leading them to experience feeling of helplessness, depression, and feeling of hopelessness[7,8]. They go through self-destructing vicious cycle. Feeling of helplessness is a negative element which blocks someone from coping actively with a disease, and which has negative effects on quality of life.

Among the researches on quality of life of cancer patients up to now, there is no comprehensive research on health promotion activities, resilience, and feeling of helplessness about cancer patients who are under treatment after having been diagnosed as having cancer. This study, by examining quality of life of cancer patients and factors affecting it, intends to develop basic resources in developing nursing intervention to improve quality of life of cancer patients.

2. Methods

2.1 Participants

Research objects are cancer patients who are under treatment in a general hospital in D city, and who understood the research purposes and could answer the questions in the questionnaire, and accepted to do that. The number of survey participants was 110. They were selected by convenience sampling. To do multiple regression analysis on three predictive variables by the G*POWER 3.1 program, the minimum sample size is 77 to maintain 5% significance level and 80% statistical power on the basis of medium effect size 0.15. We collected data from 110 respondents, considering some respondents who did not answer questions properly, and whose answers should be dropped from analysis. Excluding 14 problematic questionnaires, a total of 96 questionnaires were used in the final analysis.

2.2 Ethical Consideration

For ethical protection of research objects, this study got approval of Institutional Review Board (IRB) of K National University (IRB approval No.: KNU-IRB-2015-08).

2.3 Instruments

2.3.1 Health promotion behavior

The tool to measure health promotion behavior of respondents was what Oh[9] originally translated and revised to make it suitable to use to cancer patients and Lee and Park[101] revised again later. The tool consists of 33 questions, and respondents are asked to choose one of the four choices in Likert-type scale ranging from 1= 'not at all' to 4= 'always true'. The higher the scores are, the higher one does well in health promotion behavior. This study's Cronbach's α was .93.

2.3.2 Resilience

The tool to measure resilience is the Korean version of Conner-Davidson Resilience Scale which was what Baek[11] translated Conner-Davidson Resilience Scale (CD-RISC) and validated. It consists of 25 questions measured by the 5-point scale ranging from 1= 'not at all' to 5='very true'. The higher scores get, the higher resilience is. This study's Cronbach's α was .95.

2.3.3 Helplessness

Helplessness was measured with the 8 questions of helplessness in the cancer adjustment situation scale which was developed by Greer and Watson and translated by Oh and Lee[12]. The tool is made up of the 4-point scale ranging from 1='It is not applied to me at all' to 4='It is applied to me very much'. The higher scores get, the higher helplessness is. This study's Cronbach's α was .92.

2.3.4 Quality of life

Quality of life was measured with EORTC QLQ-C30 which was translation of Yun[13] of what European Organization for Research and Treatment of Cancer (EORTC) developed. EORTC QLQ-C30 consists of 30 questions in three subareas: 2 questions on Global health status/QOL; 15 questions on Function scale; 13 questions on Symptom scale. Most of the questions are measured by 4-point scale, but questions on Global health status/QOL are measured by 7-point scale. According to the manual for scoring, the scores are changed into 0-100 points. The higher the scores are for Global health status/QOL, Function scale, the higher quality of life is. But, high scores in Symptom scale reflect high level of physiological problems. Cronbach's α for overall quality of life was .92: that for Global health status/QOL was .91, that for Function scale was .94, that for Symptom scale was .88.

2.4 Data Analysis

Collected data were statistically treated using the SPSS WIN 18.0 program. The demographic characteristics of cancer patients and characteristics of variables were measured by frequency, percentile, mean and standard deviation. To analyze the effect of demographic characteristics of cancer patients on quality of life, t-test and ANOVA were performed, and Scheffe test was done for Post-Hoc test. Mutual relations among health promotion behavior, resilience, helplessness, and quality of life were analyzed with Pearson's correlation coefficients, and, to identify factors affecting quality of life, stepwise multiple regression analysis was conducted.

3. Result

3.1 Demographics characteristics of Subjects

Demographic characteristics of research objects of this study are as follows: In the gender ratio, the number of male was 40 (41.7%) and that of female was 56 (58.3%); In age, those who are 64 or lower were 77 (80.2%); In educational level, high school graduates were 33 (34.4%); those who have spouses were 77 (80.2%); In job category, 42 respondents were housewife (43.8%); In economic level, 71 respondents (74%) said they belonged to the middle level; The largest proportion of those who took care of patients was spouses (59 patients, 61.5%). The largest number of respondents was diagnosed as having cancers in female genital organs (40 patients, 41.7%). The number of those who were under 1~2 kinds of treatment was 51 (53.1%), and that of those who were under 3~4 kinds of treatment was 31 (32.3%) (Table 1).

3.2 The degree of health promotion behavior, resilience, helplessness and Global health status/QOL, Function QOL, Symptom QOL of cancer patients

The average score in health promotion behavior of respondents was 2.35 where the full score was 4. The average score in resilience was 90.07 where the full score was 125. The average score in helplessness was 2.01 where the full score was 4. In sub-areas of quality of life, the average score in general health condition/quality of life was 48.00 out of 100; that in functional life was 52.31, and quality of live related with symptoms was 40.92 (Table 2).

Table 1. Demographic characteristics of subjects

(*N*=96)

Characteristics	Division	No (%)
Gender	Men	40(41.7)
	Women	56(58.3)
Age(year)	≤64	77(80.2)
	≥65	19(19.8)
Religion	Yes	61(63.5)
	No	35(36.5)
Education	≤Middle school	31(32.3)
	High school	33(34.4)
	≥College	32(33.3)
Spouse	Have	77(80.2)
	Have not	19(19.8)
Economic	Good	2(2.1)
condition	Fair	71(74.0)
	Poor	23(24.0)
Job	Housewife	42(43.8)
	Yes	29(30.2)
	No	25(26.0)
Helper	Spouse	59(61.5)
	Children /Caregiver	28(29.2)
	Parents	9(9.4)
Diagnosis	Gastrointestinal	37(38.5)
	Gynecology	40(41.7)
	Respiratory	11(11.5)
	Guitar	8(8.3)
Number of treatments	1~2	51(53.1)
	3~4	31(32.3)
	≥5	14(14.6)

Table 2. The degree of Health promotion behavior, Resilience, Helplessness and Global health status/ QOL, Function QOL, Symptom QOL of cancer patients

(*N*=96)

	Variables	Mean (SD)	Rang	Observed range
	Health promotion behavior	2.53(.54)	1~4	1~4
	Resilience	90.07(17.29)	25~125	25~125
	Helplessness	2.01(.64)	1~4	1~4
QOL	Global health status	48.00(22.35)	0-100	0-100
	Function	52.31(21.92)	0-100	0-100
	Symptom	40.92(22.76)	0-100	0-100

3.3 Difference in quality of life according to demographic characteristics

There were some differences in quality of life affected by demographic characteristics of respondents. Functional quality of life was significantly different depending on age (t=2.313, *p*= .023) and education (F=4.026, *p*= .021).

Symptom-related quality of life was significantly different depending on economic level. That is, the level of functional quality of life was lower for respondents who were 65 or above than those who were younger than them, and, the younger they were, the higher the level of functional quality of life got higher. Education level was also significant in determining the level of functional quality of life. Compared with the level of functional quality of life for those who graduated from middle school or below, that for college graduates was higher. Economic level was also significantly related with the level of symptom-related quality of life. Those who designated their economic level as 'low' were high in symptom-related quality of life than those who designated their economic level as 'high'.

3.4 Correlation the Health promotion behavior, Resilience, Helplessness and Global health status/QOL, Function QOL, Symptom QOL of cancer patients

Correlations between quality of life and other variables such as health promotion behavior, resilience, and helplessness are as follows. General health/quality of life has positive correlations with health promotion behavior (r=.440, *p*<.001), and resilience (r=.251, p=.014), but negative correlation with helplessness (r=-.341, *p*=.001). Functional quality of life has positive correlations with health promotion behavior (r=.459, *p*<.001), and resilience (r=.369, *p*<.001), and negative correlation with helplessness (r=-.481, *p*<.001). Symptom-related quality of life has negative correlations with health promotion behavior (r=-.409, *p*<.001) and resilience (r=-.328, p=.001), and positive correlation with helplessness (r=.442, *p*<.001). That is, the higher health promotion behavior and resilience go up, and the more helplessness goes down, level of quality of life goes up.

The correlations among sub-variables of quality of life are as follows: General health/quality of life has positive correlation with functional quality of life (r=.700, *p*<.001), and negative correlation with symptom-related quality of life (r=-.720, *p*<.001). Functional quality of life has negative correlation with symptom-related quality of life (r=-.905, *p*<.001).

3.5 Influencing factor on Quality of Life

In order to identify factors which affect patient's quality of life, we performed stepwise multiple regression analysis, using independent variables which were significant in correlation analysis.

The regression analysis using General health condition/quality of life as dependent variable showed that Durbin-Watson statistic was 1.818, satisfying the requirement of independence of residuals. Test of multicollinearity among independent variables showed that tolerance value was 1.0, less than 1.0, and that variance inflation factor (VIF) was 1.0, less than 10, proving that there was no multicollinearity problem in the model. Among various variables, health promotion behavior explained 18.5% of general health condition/quality of life.

The regression analysis using functional quality of life as dependent variable showed that Durbin-Watson statistic was 1.863, satisfying the requirement of independence of residuals. Test of multicollinearity among independent variables showed that tolerance value was 0.74, less than 1.0, and that VIF was 1.352, less than 10, proving that there was no multicollinearity problem in the model. Among various variables, helplessness and health promotion behavior explained 27.8% of functional quality of life.

The regression analysis using symptom-related quality of life as dependent variable showed that Durbin-Watson statistic was1.617, satisfying the requirement of independence of residuals. Test of multicollinearity among independent variables showed that tolerance value was 0.74, less than 1.0, and that VIF was 1.352, less than 10, proving that there was no multicollinearity problem in the model. Among various variables, helplessness and health promotion behavior explained 22.5% of symptom-related quality of life (Table 5).

4. Discussion

By analyzing health promotion behavior, resilience, helplessness, and quality of life of cancer patients, and identifying factors affecting their quality of life, this study intends to provide basic data to prepare intervention methods to improve their quality of life.

Table 3. Difference in quality of life according to demographic characteristics (*N*=96)

Characteristics	Division	Global health QOL		Function QOL		Symptom QOL	
		Mean(SD)	t or F(p)	Mean(SD)	t or F(p)	Mean(SD)	t or F(p)
Gender	Men	48.12 (25.63)	.043 (.966)	54.28 (25.26)	–.768 (.444)	41.47 (29.97)	.201 (.841)
	Women	47.92 (19.93)		58.29 (25.24)		40.52 (23.48)	
Age	≤64	50(22.86)	1.782 (.078)	59.51 (24.66)	2.313 (.023)	38.76 (22.20)	–1.896 (.061)
	≥65	39.91 (18.55)		44.91 (24.53)		49.66 (23.47)	
Religion	Have	48.77 (21.13)	.442 (.660)	57.63 (24.30)	.517 (.606)	40.60 (23.09)	–.177 (.860)
	Have not	46.67 (24.60)		54.86 (26.95)		41.46 (22.46)	
Education	≤Middle school [a]	42.74 (22.13)	1.293 (.279)	46.38 (26.17)	4.026 (.021)	47.72 (22.07)	2.117 (.126)
	High school	51.01 (25.07)		61.28 (25.99)	a<b	38.22 (24.58)	
	≥College [b]	50(19.17)		61.73 (20.74)		37.09 (20.55)	
Spouse	Have	47.29 (22.02)	-.624 (.534)	57.98 (24.66)	1.065 (.290)	40.32 (22.16)	–.512 (.610)
	Have not	50.87 (24.04)		51.11 (27.22)		43.31 (25.52)	
Economic	Good [a]	41.67 (11.79)	.094 (.910)	83.33 (11.00)	2.416 (.095)	15.38 (14.50)	3.225 (.044)
	Fair	48.36 (22.83)		58.34 (25.49)		38.93 (21.80)	a<b
	Poor [b]	47.46 (22.11)		48.99 (23.09)		49.27 (23.85)	
Job	Housewife	50.60 (24.65)	.497 (.610)	57.30 (26.47)	1.338 (.267)	40.35 (24.64)	.589 (.557)
	Yes	45.98 (21.20)		61.23 (24.46)		38.28 (22.17)	
	No	46.00 (19.85)		50.13 (23.40)		44.92 (20.31)	
Helper	Spouse	46.75 (22.64)	.891 (.414)	57.97 (24.72)	.226 (.798)	39.89 (21.50)	.293 (.747)
	Children/Caregiver	47.62 (22.21)		54.13 (25.58)		43.68 (24.17)	
	Parents	57.41 (21.01)		55.56 (29.36)		39.03 (27.99)	
Treatment type	1~2	45.42 (24.06)	1.258 (.289)	53.38 (26.45)	1.079 (.344)	42.79 (23.24)	1.004 (.370)
	3~4	53.23 (19.80)		61.79 (22.08)		36.23 (19.86)	
	≥5	45.83 (20.61)		56.98 (26.76)		44.51 (26.77)	

Table 4. Correlation among the health promotion behavior, resilience, helpless and Global health status/QOL, functional QOL, symptom QOL of cancer patients

Variable		Health promotion	Resilience	Helplessness	Quality of Life		
					Global health	Function	Symptom
	Health promotion	1					
	Resilience	.794	1				
		(<.001)					
	Helpless	–.510	–.496	1			
	ness	(<.001)	(<.001)				
Quality of Life	Global	.440	.251	–.341	1		
	health status	(<.001)	(.014)	(.001)			
	Function	.459	.369	–.481	.700	1	
		(<.001)	(<.001)	(<.001)	(<.001)		
	Symptom	–.409	–.328	.442	–.720	–.905	1
		(<.001)	(.001)	(<.001)	(<.001)	(<.001)	

Table 5. Influencing Factors on Quality of Life

Global QOL	B	SE	β	t	p	tolerance	VIF
Constant	1.734	9.963		0.174	0.862		
Health promotion	0.554	0.117	0.44	4.717	<0.001	1	1
Functional QOL	B	SE	β	t	p	tolerance	VIF
Constant	48.711	17.661		2.758	0.007		
Helplessness	-1.635	0.497	-0.333	-3.288	0.001	0.74	1.352
Health promotion	0.411	0.144	0.289	2.85	0.005	0.74	1.352
Symptom QOL	B	SE	β	t	p	tolerance	VIF
Constant	44.916	16.527		2.718	0.008		
Helplessness	1.399	0.456	0.316	3.006	0.003	0.74	1.352
Health promotion	-0.318	0.135	-0.248	-2.359	0.002	0.74	1.352

Global QOL : R^2=.193, Adj. R^2=.185, F=22.53, p<.001
Functional QOL :R^2=.293, Adj. R^2=.278, F=19.260, p<.001
Symptom QOL :R^2=.241, Adj. R^2=.225, F=14.758, p<.001

The analysis showed that the average score of health promotion behavior of cancer patients was 2.53 in the range from 1~4 points. It was similar to those of other researches: 2.72 point in Jang and others[14], and 2.65 in Lee and Park[10] which deal with patients of female cancers. In a study based on healthy middle-aged men[15], the score was 2.27, lower than that of this study, which seems to show that cancer patients make more efforts in their health promotion behavior than healthy people in order to manage their diseases. Fearful of return or metastasis of cancers, they seem to try hard to maintain their health. Consequently, they keep their daily life to maximize their probability of survival[1]. As their cancers can return or spread to other organs, they need to keep doing health promotion behavior, making health care the top priority[10].

The average score of resilience was 90.07 where the full score was 100, which was similar to the scores acquired from other cancer researches: 89.27 points in Ha et al. [15] dealing with patients of breast cancer; 83.92 in Kim et al. [17] on patients of colorectal cancer. Kim[16,18] argues that it is important for cancer patients to strengthen resilience through cultivating positive sentiments. Consequently, it is necessary for nurses to intervene to find out factors influencing resilience of patients, and improve resilience.

The average score of helplessness is 2.01 on the scale ranging from 1 to 4. The corresponding score in No and Kim[6] regarding patients who are in hospital after being diagnosed as having cancer was 2.06, similar to that of this study. The score in Oh and Lee [12] dealing with cancer patients under anti-cancer chemotherapy in a cancer-specialized hospital was 1.64, lower than the score of this study. And, the research of Kim and Park[19] on patients who are under hemodialysis reports 2.27 as the score of helplessness. The scores are typical ones for patients hospitalized after being diagnosed as having cancer or patients who rely on machines like patients of chronic kidney disease. Helplessness has harmful effects on individuals physically and mentally[8].

The average scores of three sub-areas of quality of life were as follows: 48.00 for general health condition/quality of life; 52.31 for functional quality of life; 40.92 for symptom-related quality of life. Those scores are similar to the research of Kim et al. [20] on patients of breast cancer. The corresponding scores acquired from Yun[13] who did research on healthy people using the same questions this study uses are as follows: 70.4 for general health condition/quality of life; 88.53 for functional quality of life; 10.79 for symptom-related quality of life, proving that quality of life deteriorates for cancer patients. Consequently, it is necessary to find out factors influencing quality of life for cancer patients, and for nurses to intervene to improve quality of life for them.

Some demographic variables were significantly related with quality of life. For example, age and educational level

were found to be significantly related with functional quality of life among three sub-areas of quality of life for cancer patients. That is, the score of functional quality of life for those who are 65 or below was higher than that for those who are over 65. Jeong et al. [21] reports similar results. In addition, the corresponding score for those who graduated from college or over was higher than that for those who didn't finish their middle school, which is similar to the findings of Kwon[22]. The findings show that higher education can improve quality of life. Respondents' economic levels had effects on the scores of symptom-related quality of life, which is similar to the findings of Kwon[22]. As economic levels are the concept subjectively perceived by respondents, we can assume that symptom-related quality of life is influenced by psychological aspect to some extent.

In the correlations between quality of life and other variables like health promotion behavior, resilience, and helplessness for cancer patients, it was found that the higher health promotion behavior and resilience are, the higher general health condition/quality of life gets, and that the higher health promotion behavior, resilience, and general health condition/quality of life are, the higher functional quality of life is. Specifically, it was found that general health condition/quality of life is strongly related with functional quality of life. It was also found that the lower helplessness is, the higher functional quality of life is. Symptom-related quality of life was found to be negatively related with all the above variables-health promotion behavior, resilience, general health condition/quality of life, and functional quality of life-except for helplessness. The higher helplessness is, the higher symptom-related quality of life is.

Health promotion behavior was found to have strong correlation with general health condition/quality of life and functional quality of life. The finding is similar to the findings of Ju and Kim,[23] and Kim[24] which argues that health promotion behavior can improve quality of life. Resilience was also found to have positive correlation with quality of life[25]. In the research of Oh[1], while health promotion behavior and resilience have positive relationship with quality of life, helplessness has negative effects on cancer patients. Namely, in the process of treating cancer patients, while health promotion behavior and resilience have positive effects on those patients, helplessness has negative effects on them. It seems to be necessary to develop intervention designed to strengthen health promotion behavior and resilience and reduce helplessness.

Multiple regression analysis to identify factors influencing quality of life among cancer patients showed that health promotion behavior explains 18.5% of general health condition/quality of life, and that, as predictive elements of functional quality of life, helplessness and health promotion behavior have explaining power of 27.8%. As predictive elements of symptom-related quality of life, both of them have explaining power of 22.5%. In other words, in predicting functional quality of life and symptom-related quality of life, helplessness worked as an important element, whereas health promotion behavior is a good predictor of quality of life. Though the development of treatment methods of cancer has enhanced survival rates of cancer patients, many patients suffer from anxiety of having their cancers returned, and side effects of treatment. Such a situation leads patients to feel that they cannot do anything, which has negative effects on their quality of life. Consequently, to encourage patients to perform more health promotion behavior which contributes positively to quality of life of them, we need to develop health promotion programs.

5. Conclusion

The analysis of this study found that health promotion behavior, resilience, and helplessness are major predictors of quality of life. The former two variables work positively, and the last variable works negatively, so we need to pay more attention to it. This study has some problems to generalize its findings to all cancer patients. Based on the findings, we would like to propose the followings.

It is necessary to identify factors influencing quality of life among cancer patients to increase the effects of intervention to reduce helplessness and explaining power to improve health promotion behavior.

6. References

1. Jung KW, Won YJ, Kong HJ, Oh CM, Cho HS, Lee DH, Lee KH. Cancer Statistics in Korea: Indication, Mortality, Survival, and Prevalence in 2012. Cancer Res Treat. 2015; 47(2):127–41.
2. National Cancer Center, National Cancer Control Institute, National Cancer Screening Support Project. Date of accessed (2015.04.20); Available from: http://www.ncc.re.kr/
3. De Sousa A, Psychological Aspects of Pediatric Burns (A Clinical Review). Ann Burns Fire Disasters. 2010; 23(3):155–9.

4. Connor KM, Davidson JRT. Development of a New Resilience Scale: The Connor-Davidson Resilience Scale (CD-RISC). Depression and Anxiety. 2003; 18(2):76–82.
5. Olsson CA, Band LJ, Burns JM, Vella-Brodrick DA, Sawyer SM. Adolescent Resilience: a Concept Analysis. Journal of Adolescence. 2003; 26(1):1–11.
6. No IS, Kim KH. Effect of Family Support and Self-Esteem on Cancer Patient's Feeling of Powerlessness. Nursing Science. 2011; 23(1):35–45.
7. Miller JF. Coping with Chronic Illness: Overcoming Powerlessness. Philadelpia: FA Davis Company; 1992.
8. Lee MH, Song SM, Woo GM. Relationship among Powerlessness, Self-Efficacy and Quality of Life in Hemodialysis Patients. The Korean Journal of Rehabilitation Nursing. 2002; 5(2):166–79.
9. Oh BJ. A Structural Model for Health Promotion and Quality of Life in People with Cancer. Journal of Korean Academy of Nursing. 1996; 26(3):632–52.
10. Lee ES, Park JS. The Comparison of Health Promotion Behavior, Post Traumatic Growth and Quality of Life according to Stages of Survivorship in Patients with Female Genital Neoplasm. The Korean Academic Society of Adult Nursing. 2013; 25(3):312–21.
11. Baek HS, Lee KU, Joo EJ, Lee MY, and Choi KS. Reliability and Validity of the Korean version of the Connor-Davidson Resilience Scale. Psychiatry Investigation. 2010; 7(2):109–15.
12. Oh PJ, Lee YJ. Predictors of Fighting Spirit or Helplessness/Hopelessness in People with Cancer. Journal of Korean Academy of Nursing. 2008; 38(3):270–7.
13. Yun YH. Seoul: European Organization for Research and Treatment of Cancer quality of life group. Koonja; 2011.
14. Jang SH, Lee HR, Yeu HN, Choi SO. The Effect of Posttraumatic Growth and Meaning in Life on Health Promotion Behavior in Cancer Patients. Asian Oncology Nursing. 2014; 14(2):100–8.
15. Lee YW. Analysis of Influencing Factors on Health Promoting Behavior in Middle-aged Men. The Journal of Korean Academic Society of Adult Nursing. 1999; 11(3):557–69.
16. Ha BY, Jung JE, Choi SY. Effect of Resilience, Post-Traumatic Stress Disorder on the Quality of Life in Patients with Breast Cancer. Korean J Women Health Nurs. 2014; 20(1):83–91.
17. Kim JI, Byeon YS. A Study on the Factors Affecting Resilience in Patients with Colon Cancer. Asian Oncology Nursing. 2013; 13(4):256–64.
18. Kim JH. Resilience, Seoul: Wisdomhouse; 2011.
19. Kim KB, Park SO. A Study of the Correlation of Stress and Powerlessness Based on Hemodialysis Patients' constitution of the Korea. Journal of East-West Nursing Research. 2001; 6(1):7–22.
20. Kim HY, Kang JH, Song CE, Youn HJ. Chemotherapy-Induced Peripheral Neuropathy and Quality of Life in Breast Cancer Patients. Asian Oncology Nursing. 2013; 13(4):222–30.
21. Jeong JY, So HS, Hong JE, Chae MJ, Han GH. Related Factors to Quality of Life among Hospitalized Cancer Patients Undergoing Chemotherapy. Asian Oncology Nursing. 2012; 12(1):84–91.
22. Kwon EJ, Yi M. S. Distress and Quality of Life in Breast Cancer Survivors in Korea. Asian Oncology Nursing. 2012; 12(4):289–96.
23. Ju SJ, Kim KS. The Relationship among Quality of Life, Depression, and Subjective Health Status of the Elderly with Chronic Disease in Korea. Indian Journal of Science and Technology. 2015; 8(16):1–8.
24. Kim EK, Park YS. Health Promotion, Stress and Quality of Life in Patients with Genital Neoplasma. The Korean Journal of Rehabilitation Nursing. 2010; 13(2):114–22.
25. Ryu YM, Yi MS. The Factor Influencing Quality of Life in Women with Breast Cancer. Asian Oncology Nursing. 2013; 13(3):121–7.