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Correlation between Preventive Health Behavior and Family Burden in Family Caregivers for the Elderly with Dementia

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Abstract

The purpose of this study was to identify correlations of preventive health behavior and family burden in family caregivers for elderly patients with dementia at home. This cross sectional study was conducted with 153 family caregivers from February to May 2012. The data were analyzed using descriptive analysis, independent t-test, one-way ANOVA and Pearson's correlation. The mean scores for preventive health behavior and family burden were 2.35 (±0.32) and 2.15 (±0.48) respectively. The highes level of behavior among sub-components of preventive health behavior scale was lifestyle management, while the lowest level of behavior was exercise and activity. The highest level of family burden among sub-dimensions was personal and social restrictions, while the lowest level of burden was care recipient as provocateur. Preventive health behavior of family caregivers showed significantly negative correlation with family burden (r=-.561, p<.001) and its sub-components: Personal and social restrictions (r=-.558, p<.001), physical and emotional health (r=-.773, p<.001), feeling of worthiness of providing care (r=-.342, p<.001) and care recipient as provocateur (r=-.317, p<.001). Therefore, nursing and healthcare professionals need to focus more on caregivers' health status and preventive health behavior before serious health problems are emerged. Furthermore, healthcare professionals are required to pay more attention to negative emotions as well as health-related behavior of caregivers when they experience burden on caring for the elderly with dementia.

Keywords: Burden, Family Caregiver, Preventive Health Behavior

1. Introduction

With an increase in average life expectancy in a modern society, there is a proportionately increase in the number of elderly people who are dependent on caregivers due to many chronic diseases caused by aging[1]. Dementia is one of the typical chronic diseases of the elderly.

Dementia is one of stressors that affect the whole family. People with dementia live 7 to 10 more years after diagnosis, on average and most of those years are spent at home[2]. Accordingly, family members who live with the patient take a responsibility to provide home health care for them. Caring for the elderly with dementia often requires difficult and overwhelming tasks which are challenging for caregivers[2].

A number of family caregivers experience various changes in their own lives[3]. Positive changes, such as family cohesion and self-esteem of caregiver, are increased when family members are effectively adaptable to stressors caused by caring for the elderly with dementia[4]. However, most studies have reported that there were far more families experiencing negative changes than families experiencing positive changes[3].

Generally, negative experiences that family caregivers experienced were as follows: depressive disorder[5–7], anxiety disorder[5,7,8], lower levels of life satisfaction[9],

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burden[6,7,10,11], loss of self[12], prolonged distress[12], emotional strain[13], family conflict[14,15] and decreased quality of life[16]. These were most psychological problems. However, beyond these experiences, family caregivers could also experience physical and behavioral changes. According to previous studies, some family caregivers underwent decrease of preventive health behavior[15], decrements in immunity measures[8,17], greater cardiovascular reactivity[18] or slowing of wound healing[19]. Family caregivers also complained fatigue[20], worsening of headache, insomnia or digestive symptoms.

Therefore, this study was conducted to identify the level of family burden and preventive health behavior and to examine the correlations of preventive health behavior and family burden in family caregivers for the elderly with dementia at home.

2. Methods

2.1 Design and Sample

This study was descriptive research to identify the correlations of preventive health behavior and family burden in family caregivers for the elderly with dementia at home. The subjects were recruited at three local dementia centers and one public health center. A total of 153 subjects were participated in this study. The number of the subjects in this study was sufficient enough for analysis since Cohen's (1988) rule requires 138 subjects to detect a medium effect (d=.30) in primary outcomes with a power of .80 and a two-tailed alpha of less than .05.

2.2 Procedure and Ethical Considerations

Data were collected from four centers for dementia patients and caregivers, from February to May 2012. The purpose and procedure of the study were fully explained to the subjects and the questionnaires were distributed to them after they agreed to participate in the study. The total number of the subjects was 160 students, excluding 7 subjects whose questionnaires were incomplete, totaling 153 for final analysis. Recruitment and data collection was conducted by four center's staff.

2.3 Measures

The preventive health behavior scale developed by Suh consists of 31 items with six components on a 3-point Likert-type scale, ranging from 31 to 93. Six components include health check and consultation, nutrition and diet, lifestyle management, exercise and activity, drinking and smoking, and stress management[4]. The cronbach's alpha coefficient was .823 at the time it was developed. In this study, it was .876.

Family burden was measured by Cost of Care Index (CCI) which was translated into Korean by You[5]. The CCI was developed as a case management tool to assist professionals in family assessments and to identify actual or perceived problem areas of families in the care of elderly relatives. It consists of 20 items with five dimensions of caregiving, including personal and social restrictions, physical and emotional health, value items (feeling of worthiness of providing care), care recipient as provocateur and economic costs. It uses a 4-point Likert-type scale and total scores range from 20 to 80, with higher scores indicating higher risks. The cronbach's alpha coefficient was .89 at the time it was revised in Korea (You, 2001). In this study, it was .844.

2.4 Statistical Analyses

Frequency, percentage and mean values of family burden, preventive health behavior and general characteristics of family caregivers were analyzed with descriptive statistics. Independent t-test and one-way ANOVA were used to detect the differences of family burden and preventive health behavior by general characteristics. Tukey's post hoc test was performed. Finally, to examine the correlations of preventive health behavior and family burden in family caregivers, Pearson's correlations was performed. Data were analyzed using SPSS for Windows, version 21.0 (SPSS Inc., IL.USA).

3. Results

3.1 General Characteristics of Family Caregivers and the Elderly with Dementia

Table 1 shows the general characteristics of family caregivers and the elderly with dementia participated in this study. The age range of family caregivers was from 28 to 78 years with a mean of 51.18 (±13.59), while 74.5% were female by gender, 50.3% were the adult children of the elderly with dementia. For marital status, 61.4% were married. For educational background, 43.8% of whole family caregivers had completed university, while 63.4% were currently employed for the job status and 73.9% had

Table 1. General characteristics of family caregivers and the elderly with Dementia

Characteristics	Categories	N	%	M±S.D.
Gender	**Female**	**114**	**74.5**	
	Male	39	25.5	
Age (year)	≤40	43	28.1	51.18±13.59
	41-60	55	35.9	
	≥61	55	35.9	
Relation with the elderly	Adult children	77	50.3	
with dementia	Spouse	34	22.2	
	Daughter-in-law	27	17.6	
	Others	15	9.8	
Marital status	Unmarried	59	38.6	
	Married	94	61.4	
Education	≤Middle school	33	21.6	
	High school	53	34.6	
	≥College	67	43.8	
Job	Yes	97	63.4	
	No	56	36.6	
Religion	Yes	113	73.9	
	No	40	26.1	
Family income	≤1,000 thousand	72	47.1	
(Korean won/month)	1,001-2,000 thousand	52	34.0	
	≥2,000 thousand	29	19.0	
Reason for caring	Love	50	39.7	
	Obligation	62	49.2	
	Economic reasons	14	11.1	
Gender	Female	93	60.8	
	Male	60	39.2	
Age (year)	61-70	32	20.9	75.90±7.19
	41-80	69	45.1	
	81-90	52	34.0	
Type of dementia	Alzheimer	42	27.5	
	Vascular	19	12.4	
	Unknown	92	60.1	

*Excluded no response

religions. Most of family caregivers provided care for the elderly with dementia because of obligation or love for the elderly.

The ages of the elderly were ranged from 62 to 88 years with a mean of 75.90 (±7.19). By gender, 60.8% were female and more than half (60.1%) did not know the type of dementia.

3.2 Preventive Health Behavior and Family Burden of Family Caregivers

The score for overall preventive health behavior ranged from 1.87 to 2.97 with the mean of 2.35 (±0.32). The highest level of behavior among sub-components of preventive health behavior scale was lifestyle management, while the lowest level of behavior was exercise and activity according to standardized scores. The score for overall family burden ranged from 1.15 to 3.05 with the mean of 2.15 (±0.48). The highest level of family burden among sub-dimensions was personal and social restrictions, while the lowest level of burden was care recipient as provocateur Table 2.

Table 2. Preventive health behavior and family burden

	M±S.D.	Range
Preventive health behavior	2.35±0.32	1.87-2.97
Health check and consultation	2.27±0.59	1.33-3.00
Nutrition and diet	2.24±0.41	1.63-3.00
Lifestyle management	2.53±0.39	1.57-3.00
Exercise and activity	2.23±0.49	1.25-3.00
Drinking and smoking	2.36±0.74	1.00-3.00
Stress management	2.38±0.62	1.00-3.00
Family burden	2.15±0.48	1.15-3.05
Personal and social restrictions	2.36±0.66	1.25-3.50
Physical and emotional health	2.00±0.76	1.00-3.50
Value items	2.11±0.59	1.00-2.75
Care recipient as provocateur	1.83±0.52	1.25-3.25
Economic cost	2.14±0.55	1.00-3.50

3.3 Differences in Preventive Health Behavior and Family Burden by General Characteristics

Table 3 shows the differences in preventive health behavior and family burden by general characteristics of family caregivers and the elderly with dementia. Preventive health behavior was significantly different according to gender, age, relation with the elderly, marital status, job, religion, family income and reason for caring of family caregivers and age of the elderly. Family burden was significantly different according to gender, age, relation with the elderly, marital status, education, job, family income and reason for caring of family caregivers.

3.4 Correlation between Preventive Health Behavior and Family Burden in Family Caregivers

Total score of preventive health behavior in family caregivers showed a significantly negative correlation with family burden (r=-.561, p<.001) and its sub-components: Personal and social restrictions (r=-.558, p<.001), physical and emotional health (r=-.773, p<.001), feeling of worthiness of providing care (r=-.342, p<.001) and care recipient as provocateur (r=-.317, p<.001) Table 4.

4. Discussion

Most of the dementia patients who are not accommodated at medical facilities live at home, under care mainly by the family members. Contrary to other senile health problem, dementia causes cognitive impairment and problematic behavior that brings enormous mental, social and economic burdens to the family caregivers[21]. Actually it is reported that caregivers attending to dementia patients appeal for more health problems, take more medicine and more frequently use medical services than others[22,23]. Therefore this study is implemented to find out the sense of burden and level of health activities held by family caregivers attending to the aged dementia patients and to verify the relationship between the two variables.

The preventive health behavior by family caregivers attending to the aged dementia patients shows 2.35 (±0.32) out of 3 as the perfect score, hence higher than the median value. The score in case of lifestyle management is the highest and the score in case of exercise and activity was lowest. Though this cannot be accurately

Table 3. Difference in safety awareness and health behavior according to general characteristics

Characteristics	Categories	Preventive health behavior			Family burden		
		M±S.D.	/F		M±S.D.	/F	
Gender	Female	2.38±0.32	-2.084	.039	2.22±0.36	-2.288	.027
	Male	2.250.33			1.95±0.69		
Age (year)	≤40 (a)	2.59±034	22.174	<.001	1.79±0.59	29.743	<.001
	41-60 (b)	2.26±0.32		b,c<a	2.17±0.34		a<b<c
	≥61 (c)	2.24±0.32			2.43±0.26		
Relation with the elderly	Spouse (a)	2.29±0.19	6.918	<.001	2.42±0.19	54.609	<.001
with dementia	Adult children (b)	2.38±0.41		a,b,c<d	2.23±0.38		d<b,c<a
	Daughter-in-law (c)	2.19±0.05			2.16±0.41		
	Relatives (d)	2.61±0.01			1.15±0..01		
Marital status	Unmarried	2.53±0.42	5.304	<.001	1.80±0.43	-8.662	<.001
	Married	2.23±0.16			2.38±0.35		
Education	≤Middle school	2.20±0.14	37.205	<.001	2.11±0.14	39.175	<.001
	High school	2.17±0.20			2.52±0.29		
	≥College	2.56±0.35			1.89±0.51		
Job	Yes	2.42±0.33	2.050	.042	2.27±0.35	-3.677	<.001
	No	2.31±0.32			1.95±0.59		
Religion	Yes	2.44±0.32	-6.940	<.001	2.12±0.51	1.547	.124
	No	2.08±0.12			2.25±0.35		
Family income	≤1,000 thousand (a)	2.19±0.21	23.171	<.001	2.39±0.25	58.912	<.001
(Korean won/ month)	1,001-2,000 thousand (b)	2.53±0.39		a<b,c	2.17±0.45		c<b<a
	≥2,000 thousand (c)	2.41±0.21			1.54±0.41		
Reason for caring	Love (a)	3.63±0.27	27.083	<.001	1.80±0.40	29.435	<.001
	Obligation (b)	2.14±0.16		b,c<a	2.37±0.35		a<b,c
	Economic reasons (c)	2.19±0.22			2.51±0.37		
Gender	Female	2.33±0.36	0.609	.543	2.34±0.51	0.447	.482
	Male	2.37±0.26			2.33±0.36		
Age (year)	61-70 (a)	2.17±0.17	9.641	<.001	2.15±0.29	1.576	.230
	41-80 (b)	2.52±0.29		a,c<b	2.12±0.64		
	81-90 (c)	2.23±0.32			2.08±0.21		
Type of dementia	Alzheimer (a)r	2.48±0.39	1.702	.187	2.06±0.15	1.385	.352
	Vascular (b)	2.44±0.29			2.15±0.25		
	Unknown (c)	2.35±0.28			2.15±0.47		

Table 4. Correlations between preventive health behavior and family burden

	Total family burden	Personal and social restrictions	Physical and emotional health	Value items	Care recipient as provocateur	Economic costs
Preventive health behavior	-.561***	-.558***	-.773***	-.342***	-.317***	-.263

*** $p<.001$

compared due to lack of precedent studies comparing with the similar age band using identical tools, in comparison with the scores measured on males aged 45 or higher with 52 questionnaires' Health-Promoting Lifestyles Profile II (HPLP) was 2.71 (±0.43) out of 4 scores as the perfect score, this score was found as relatively high[24]. Also females aged 45 or over were lowest in scores of physical activity. This change is regarded as relatively difficult, as this requires progressive activity with sparing separate time or changing living pattern. As the labor of attending to the aged dementia patients require much time and efforts, it is regarded as impossible to spare personal time for exercise. Like the studies on the grandmothers attending to their grandchildren, this is regarded as because it is difficult for the caregiver to take time to care oneself, as all attentions are concentrated on the object of attention rather than somebody who receives no attention, in performing new task of attending to somebody[25].

The preventive health behavior and family burden by the family caregivers attending to the aged dementia patients differed due to the relation with the elderly with dementia and the reason for caring. Rather than spouse or adult children, daughter-in law, relatives have lower family burden but higher preventive health behavior. Also, spouses feel more family burden than other groups. Therefore, health providers need to confirm who the family members attending to the aged dementia patient are and to check their mental stresses. It is necessary to encourage them to be engaged in the activities to maintain and enhance their health, separately from attending to the aged dementia patients.

The preventive health behavior by the family caregivers attending to the aged dementia patients had meaningfully negative correlation with the burden felt by the caregivers. The higher is the personal and social restrictions, the worse is the physical and emotional health, the less value is felt from the work of attending to the aged dementia patients and the more stress is felt on the aged dementia patient, the lower score the preventive health behavior by the family caregivers shows. In other words, this means that the more stress or burden family caregivers feels on attending to the aged dementia patients, the less he/she spends time and efforts on his/her own health.

According to precedent studies, caregivers attending to the aged dementia patients are reported as less engaged in health activity and lower in health level than those who do not[15,20,22,23]. However, the result of this study draws an analogy that family caregivers do not attend to themselves just due to lack of time for oneself because they allocate much time to attend to the aged dementia patients, but because their behaviors are restricted by the psychological burden from attending to the aged dementia patients. Actually, depression[26] or psychological status[27] appears as giving negative effect to personal health promoting behavior or preventive health behavior. Therefore, health providers attending to the dementia patients and family caregivers need to check the psychological condition or burden of the caregivers and to help them not be become negligent to their own health.

Generally, family caregivers provide the elderly with dementia with health care, mostly focused on general home healthcare or health problems of the elderly. However, family caregivers do not appear to be concerned about their own health care needs[28]. The higher is the caregivers' psychological burden, the more severe this phenomenon appeared. Therefore, nursing and healthcare professionals need to focus more on caregivers' health status and preventive health behavior before serious health problems are emerged. Furthermore, healthcare professionals are required to pay more attention to negative emotions as well as health-related behavior of

caregivers when they experience burden on caring for the elderly with dementia.

This study has some limitations. Most of all, this study did not cover family caregivers in various setting and does not verify the concrete reason for non-performance of preventive health behavior. Accordingly, subsequent studies are required to find out the accurate reason why family caregivers attending to the aged dementia patients cannot implement preventive health behavior through in-depth interviews, to be used for mediation thereof.

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