

# Needs for Home Care Nursing in the Vulnerable Elderly

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**Purpose.** The purpose of this study was to determine the subjects' health status according to the needs of visiting health and the function of the family in home care nursing.

**Sample and Method.** The data collection period was from 07/01/04 to 10/31/04 and the subjects were 488 of those above 60 years of age staying at home or living alone who registered at a visiting health service of public health center at an urban area in Korea. This survey was carried out by visiting health nurses and participation was agreed on by the elderly people.

**Results.** The extent of the subjects' total health status to the general characteristics had differences according to the age, sex, monthly income, perceived health status, known functional disorder, and yes-or-no for disease. At all health status domains, visiting health need care in the group I was very lower than one in II, III, or IV groups. Also the severe dysfunctional family was lower than lightly dysfunctional family and normal functional family in all health status domains.

**Conclusion.** Nurses must provide their characteristics considered nursing intervention for the elderly who have high visiting health needs and severe dysfunctional family with vulnerable health care.

**Key Words :** Home care nursing, Health Status, Family Function, Elderly

## INTRODUCTION

The elderly population above 65 years of age in Korea increased from 5.1% of the whole population in 1990 to 7.1% in 2000 and will be reached up to 14.4% in 2019 (The Korea Institute for Health and Social Affairs; KIHASA, 2002). According to the survey of the KIHASA in 2000, 86.7% of the elderly have more than one chronic disease and 5.3% of the elderly are unable to do activities of daily living without help. The need to take care of this population has been increased, but the number of the elderly living alone has been increased (Jun,

Kim, Park, & Oh, 2002). Family supporting system for the elderly has been decreased due to the increase of nuclear family. However, supports from society and the government did not increased compared to the need. A rapid increase of aged population provoked some social issues such as a rapid increase of the health care costs for elderly. The health status of the elderly is one of the most important factors to determine the medical cost expenditure, a statistical index related to health, and the quality of life. Therefore, a national policy was necessary to solve this problem. The Community Visiting Health Service was started by the public health center and this has served as the hub of the health care delivery system

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in Korea. As a result there has been an improvement in the quality of life for the elderly and in turn there were many medical cost-cutting effects for chronic illness (Korea Health Industry Development Institute, 2003).

Major subjects of visiting health service are the elderly who does not have efficient and sufficient health care supporting system and has a low family function (Cheong, 1995). They are susceptible to disease and have a high prevalence of chronic degenerative diseases. Eventually, the elderly are not able to maintain their physical independence and activities of daily living, and their expected roles of social performance and activities of social integration. To do the visiting health service for the elderly with vulnerable health care, the subjects' characteristics and ability self care should be reflected. A health promotion program should be developed to improve the potential for a healthy life for the elderly by incorporating healthy life style practices, and to prevent and manage chronic diseases (Lee, 2001). A study on the health status of the elderly is needed in order to determine to what extent the function of the family is related to the status. This Health status information can be served as baseline data for the development of health promotion program. In addition, an elderly person should be regarded as an invaluable being living independently with physical health and social relationships. The purpose of this study is to evaluate the health status for the elderly in the vulnerable health care group. The specific aims of this study are as follows: to identify the subject's need for visiting health and the function of the family and health statue and to determine the subjects' health status according to the general peculiarities, the needs of visiting health care and the function of the family in home care nursing.

## METHODS

**Research Design ;** This study is a descriptive study to identify needs for visiting health service of the elderly.

**Sample ;** The subjects were 488 of those above 60 years of age who registered at a visiting health service of a public health center in Busan, Korea and agreed to participate in this study.

**Procedures ;** This survey was carried out by visiting health nurses and nursing students working for the visiting health service from July to October, 2004. As most of the elderly had difficulties to read and answer the questionnaire, the interviewers read the questionnaire

for them and recorded their answers with subjects' permission.

### *Measurement*

#### 1) Visiting health needs

To evaluate the visiting health needs the scale of the self-care ability, an operating indicator of the visiting health service (KHIDI, 2003) was used. The scale is composed of the seriousness of family and health problems, the holding and using rates of the upholding sources, the recognition and attitude of the health problems, and the knowledge of coping for the health problem solution. The scale has five items, and each item was measured in a 4-point rating likert scale. The higher average score, the lower visiting need. In this study, the reliability of the scale was Cronbach  $\alpha = .89$  and the judgment of visiting need was determined by the total score of self-care ability: below 6 is classified as group I (intensive care group); 7–10, group II (regular care group); 11–15, group III (regular/ follow-up care group); above 16, group IV (self-care group).

#### 2) Family function

The scale of the family function developed by Smilkstein (1984) and translated by Lee(1987). It is composed of the adaptation rate, the growth rate, the affection rate, the cooperation rate and the intimacy rate. Each 5 items was measured by 3 points of 'seldom' (score 0), 'often' (score 1) and 'always' (score 2) and the total score was sum of five items' score. The higher total score, the lower family function rate. The reliability of the scale in this study was Cronbach  $\alpha = .93$ , and the judgment of family function was determined as follows: below 0–3 is classified as a severe disorder family; 4–6, a mild disorder family; 7–10, a normal functional family.

#### 3) The elderly health status

To evaluate the elderly health status the scale of the Korean elderly people health status' developed by Shin, Kim, Cho, Won, Song, Park, Yun, and Chung (2002) was used. It is designed to collect the daily functional change items revealed the health status change by interviewing the people above 60 years of age, living in the community and evaluating their health status as to their quality of life. This scale has 6 domains: the physical function (19 items), the social function (6 items), the emotional function (13 items), pain status (2 items), sexual life (1 item)

and health recognition status (3 items). Each item was measured by a 5-point rating scale. The higher the average score, the higher the health status.

The reliability of this scale was reported  $\alpha = .94$  in the physical function,  $\alpha = .90$  in the emotional function, and  $\alpha = .85$  in the social function. In this study, the reliability of the general items was Cronbach  $\alpha = .97$  and the physical function was  $\alpha = .96$ ; the emotional function  $\alpha = .97$ ; the social function;  $\alpha = .84$  (Shin, et al., 2002).

Analysis of Data; Data were analyzed using the computer program SPSS/PC, version 12.0 for Windows General characteristics, the visiting health care, and the family function was analyzed using a t-test, ANOVA and the post hoc Scheffe's test.

## RESULTS

### Subjects' General Characteristics

The subjects' average age was  $73.4 \pm 6.6$  (min 60-max 92). Seventy six percent of the subjects was female and 23.6% was male. A majority of the subjects were 'bereaved (66.0%) in marital status'; 'no school (53.7%)' in educational status; and 'less 500,000 (87.7%)' in monthly income. Fifty-two percent of the subjects answered that 'acknowledged health status' was 'wrong' and 35.0% of the subjects answered that 'acknowledged functional disorder' was 'serious'. Moreover, the subjects with one disorder were 15.2%, the subjects having more than one disease were 96.7%,

**Table 1.** Subject's Total Health Status According to the General Characteristics (N=488)

Variable	Division	n	%	M	SD	t or F	p	Scheffe's
Age (73.4 ±6.6) (min60-max92)	60-64	46	9.4	2.84	.53	2.32	.09	
	65-74	228	46.7	2.94	.60			
	Above 75	214	43.9	3.00	.73			
Gender	Male	115	23.6	2.82	.63	4.41	.03*	
	Female	373	76.4	2.96	.60			
	Separated	16	3.3	2.63	.49			
Marital status	Married	150	30.7	2.88	.53	.06	.79	
	Bereaved	322	66.0	2.92	.61			
	No school	262	53.7	2.91	.61			
Education level	Primary	49	10.0	2.89	.65	2.09	.11	
	Above middle school	24	4.9	2.85	.71			
Monthly income	Less500a	428	87.7	2.80	.61	7.60	.001***	c > b > a
	500-1,000b	46	9.4	2.92	.58			
	Above1,000c	14	2.9	3.23	.56			
Perceived health status	Strong	56	11.5	3.14	.59	4.96	.007**	a > b, c
	Normal	178	36.5	2.81	.51			
	Bad	254	52.0	2.94	.67			
Known functional disorder	No disorder	63	12.9	2.80	.62	3.34	.01*	c > a, b
	A little	149	30.5	2.93	.50			
	Normal severe	105	21.5	3.06	.44			
Absence of disease	Yes	171	35.0	2.86	.75	6.60	.01*	
	No	472	96.7	3.31	.76			
Register disorder	Yes	16	3.3	2.90	.60	4.89	.02*	
	No	74	15.2	2.79	.54			
	Christianity <sup>a</sup>	414	84.8	2.94	.61			
Religion	Chatholicism <sup>b</sup>	101	20.7	2.50	.59	6.53	.002**	c > b > a
	Buddhism <sup>c</sup>	122	25.0	2.92	.68			
	Others, no <sup>d</sup>	176	36.1	2.98	.51			
	Living alone <sup>a</sup>	89	18.2	2.92	.76			
Living type	Spouse <sup>b</sup>	199	40.8	2.84	.68	3.45	.03*	b,c > d > a,e
	Married son <sup>c</sup>	115	23.6	3.22	.61			
	Married daughter <sup>d</sup>	93	19.1	3.02	.51			
	Otherse	58	11.9	2.99	.32			
		23	4.7	2.61	.46			
Total		488	100.0	2.92	.62			

\*p < .05 \*\*p < .01 \*\*\*p < .001

and an average number having disease was  $2.6 \pm 1.2$  (min 0–max 5). Fifty five percent of the subjects had health problems. Most frequent health problems are arthritis, 51.6%; hypertension, 25.4%; and diabetes, 27.0 % in Table 1.

### *The extent of the subject's visiting health needs and the family function*

The average score of the self-care ability was  $10.58 \pm 2.35$  (min 4–max 18); 10 points, 32.4%; 11, 12.5%; 12, 10.7%; 9, 9.4%; and 8, 8.6%. The judgment for visiting need was determined by the total score of self-care ability: below 6, group classified as group I (intensive care group) was 4.9%; 55.7%, group II (regular care group) of 7–10; 38.9%, group III (regular/ follow-up care group) of 11–15; 0.4%, the group IV (self-care group) of above 16 (see Table 2). The higher the total score, the higher the family function rate. The average family function score of the subjects was  $4.00 \pm 3.16$  (min 0–max 10); 25.0%, 5 points; 9.0%, 6; 8.0%, 1 and 10; 5.9%, 2; 4.9%, 3 and 4; 3.7%, 7 and 8; 3.5%, 9. As shown in the 2-2, 42.2% of the total elderly population showed 0-3 points (severe family dysfunction); 38.9%, 4–6 (mild family dysfunction) ; and 18.9%, 7–10 (normal family function) in Table 3.

### *The extent of the subject's health status*

The average point of the subject's health status was  $2.92 \pm .61$  (min 1–max 5), which is comparatively low. In terms of each domains, the averages were  $3.02 \pm .99$ , in the physical function;  $2.97 \pm .86$ , in the emotional

function;  $3.02 \pm 1.24$ , in the social function;  $3.06 \pm .83$ , in the pain status;  $3.12 \pm 1.38$ , in the sexual life; and  $2.48 \pm .64$ , in the whole health recognition status. The highest was the status of sexual life while the lowest was the health recognition status in Table 4.

### *The Extent of the Subject's Total Health Status according to the General Characteristics*

There are statistically significant differences in the daily health status of the subject's physical functional domain according to age, monthly income, and acknowledged health status ( $p < .05$ ). The subjects' total health status was the highest in the above 75 yrs old group, and the above 75 yrs old group showed statistically significantly higher health status score than the 65–74 yrs old and 60–64 yrs old groups; in the 'sex' domain, females were higher than males ( $p < .05$ ). In monthly income, the group of those earning above 1,000,000 (won) group was in higher health status than the group of those making less than 1,000,000 (won) ( $p < .001$ ).

In the acknowledged health status, the group of 'strong' showed higher score than that of 'wrong' did ( $p < .01$ ); in the acknowledged functional dysfunction, the group of 'normal' was higher than that of 'no' and the group of 'a little' was higher than that of 'no' ( $p < .05$ ); in the yes or no for a disease, the group of 'no' was higher than that of the group of 'yes' ( $p < .01$ ). In summary, in the group of above 75 yrs old, female group, the group of those earning above 1,000,000 (won) monthly, the group of 'strong health', the group of 'normal dysfunction', and the group of 'no disease' had better health status than other groups in Table 1.

### *The Extent of the Subject's Total Health Status domains according to the Group of Visiting Health Needs and Family Function*

The subjects' visiting health needs were statistically different in subdomains such as the whole domain's total

**Table 2.** The Extent of the Subject's Visiting Health Needs Group (N=488)

Variable	Division	n	%
Visiting need care group	I Intensive care (below 6)	24	4.9
	II Regular care (7–10)	272	55.7
	III Follow-up care & self-care (above 11)	192	39.3
Total		488	100.0

**Table 3.** Extent of the Subject's Family Function Group (N=488)

Variable	Division	n	%
Family function classified group	Severe disorder (0–3.99)	206	42.2
	Mild disorder (4–6.99)	190	38.9
	Normal function (7–10)	92	18.9
Total		488	100.0

**Table 4.** Subject's Health Status to the Domains (N=488)

Domain division (items) of health status	M	SD
Physical function status (19)	3.02	.99
Emotional function status (13)	2.97	.86
Physical pain status (2)	3.06	.83
Social function status (6)	3.02	1.24
Sex-life status (1)	3.12	1.38
Health conscious status (3)	2.48	.64
Total (44)	2.92	.61

**Table 5.** Health Status to the Group of the Subject's Visiting Needs and Family Function

Characteristics	Divions	Domain health status						
		Health Status	Physical Status	Emotional Status	Social Function Status	Physical Pain Status	Sex Life Status	Health Conscious Status
		M	M	M	M	M	M	M
Visiting Health Needs Groups	I <sup>a</sup>	2.50	2.49	2.58	2.33	3.00	3.08	1.52
	II <sup>b</sup>	2.92	3.05	2.98	3.06	3.01	3.08	2.34
	III <sup>c</sup>	2.97	3.04	2.99	3.03	2.78	3.17	2.80
	Total	2.92	3.02	2.97	3.02	2.93	3.12	2.48
	F	5.78	1.98	1.00	1.91	4.99	0.92	8.50
	p	.000***	.139	.368	.149	.007**	.397	.000***
	Scheffe's	a < b, c				a, b > c		a < b < c
Family Function Group	Severe <sup>a</sup>	2.84	2.87	2.85	2.80	3.01	3.17	2.33
	Mild <sup>b</sup>	2.98	3.05	3.02	3.06	2.91	3.26	2.58
	Normal <sup>c</sup>	2.99	3.26	3.13	3.43	2.81	2.72	2.61
	Total	2.92	3.02	2.97	3.02	2.93	3.12	2.48
	F	3.45	3.76	2.97	4.09	2.32	3.89	4.12
	p	.032*	.005**	.021*	.000***	.079	.007**	.000***
	Scheffe's	a < b < c		a < b < c	a < b, c	a < b < c		a < b, c

\*p < .05 \*\*p < .01 \*\*\*p < .001

health status, physical function, emotional function, pain status, health awareness status, daily life, physiological function, pain frequency, and pain strength acknowledged functional disorder ( $p < .05$ ). In the group having visiting health needs, the total health status, physical function status, social function status, health awareness status, daily life, and physiological health status of group III was higher than those of group I and II ( $p < .01$ ). The subject's family function indicated statistically significant differences in the subdomains such as whole domain's total health status, physical function, emotional function, social function status, sex life status, and health awareness status ( $p < .05$ ). There are statistically significant differences between the normal functional family and the other groups in the domains for total health status, physical function, emotional function, social function, and health awareness status ( $p < .05$ ) in Table 5.

## DISCUSSION

The average score of the subject's self-care ability for visiting health needs was  $10.58 \pm 2.35$ . The group judgment by that score was 4.9%, below score 6 classified as group I (intensive care group); 55.7%, the group II (regular care group) of 7–10; 38.9%, the group III (regular/follow-up care group) of 11–15; 0.4%, the group IV (self-care group) of above 16. There are difference in the score of the group IV comparing to the one in the same area in 2003–21.1%, group I; 30.4%, group II; 37.2%,

group III; 9.3%, IV (4.4%; 15.2%; 56.4%; 13.7%, in the last visit) and the results of the visiting survey of Dongjak-Gu in Seoul–1.7%, group I; 19.4%, group II; 44.0%, group III; 35.0%, group IV (2.3%; 14.1%; 39.4%; 44.2%, in the last visit) (Lee, 2003; Shin, 2003).

The average family function score of the subjects was  $4.00 \pm 3.16$ . That was lower than the other scores;  $5.45 \pm 2.17$  (student group) and  $4.65 \pm 2.41$  (juvenile detection home students) in the study of Kang (1984) who used the same tools and measurement for the student group and the juvenile detection home students;  $5.68 \pm 2.52$  (mental patient group) and  $6.55 \pm 2.18$  (opposite group) in the study of Yun (1985); The results of Lee et al. (2002). A possible reason for the difference compared with other studies is that the subjects of this study were mostly above 70 year old females without their spouse and with limited educational experiences, so they didn't have reliable family functions (flexibilities, cooperation, growth & affection) nor family satisfaction. The tool was considered inappropriate to measure the family function for the elderly living alone without family function.

In the family function, the severely dysfunctional family was 42.2%, the mild dysfunctional family was 38.9%, and the normally functional family was 18.9%. There was a difference between this study and the Jun et al. (2002)'s research, which compared the mental patient group to the control group; 65.0% (severe disorder family), 32.5% (mild disorder family) and? 2.5% (normal functional family) for the mental patient family group;

50.0% (severe disorder family), 45.0% (mild disorder family) and 5.0% (normal functional family) for the control group. Therefore, these results are suggestive in that there was the possibility to improve it for the reason that the subjects of this study were senior citizens from lower class and most suffered with a chronic disease.

In the subject's health status by domain, the highest domain was  $3.12 \pm 1.38$  for 'sex life' and the lowest was  $2.48 \pm .64$  for health consciousness ;  $3.02 \pm .99$ , physical;  $3.02 \pm 1.24$ , social;  $2.97 \pm .86$ , emotional. In the research of Shin and Kim (2004), there were some differences in the above mid-level 'physical' and 'emotional' functional domain and in the below mid-level 'social' functional domain. In Jang (2004)'s study, different tools were used to measure the health status and the elderly subjects' health status (3.98) was higher than that of this study. The sexual ability ranked 'highest' in this study but ranked 'lowest' in Jang's. These results are suggestive that there had been some progresses in the physical and social function because the subjects of this study had been served visiting health service by the health and welfare relating system as the beneficiaries of the intensive care area from 2003. The other possible reason for 'highest' the sex life ability in this study is the visiting nurses' amicable attitudes. This may make it possible to induce the subjects' candid responses beyond the taboos and the socially stereotypical responses for sex, which can lead negative responses. The subjects' health status of the emotional domain showed low scores. It suggests that there is a great need for visiting care on the emotional functions such as depression and anxiety.

The extent of the elderly people's total health status showed differences depending on age, sex, monthly income, known health status, acknowledged functional disorder, and yes-or-no for a disease. Specifically, it showed better health status, in the 'above 75' years of age group; 'female' elderly people; 'above 1,000,000' group; 'strong' group ; 'normal' group ; 'no' disease group. It is somewhat similar to Shin and Kim (2004); there were differences depending on the extent of the age, education, marital status, living arrangement, spending money, yes-or-no for disease, and health care expense. The results of this study is similar to Jang (2004); as to the results for age, sex, marital status, education, religion, monthly income, health awareness, yes-or-no for drinking, and yes-or-no for the family living together. All results including this study suggest that systematic policies are needed to maintain elderly people's

health by social and educational support for the economic activities, not only simple economic support.

The extent of the subject's health status by the visiting health care needs indicated significant differences in the subdomains such as total health status, physical function, emotional function, pain status, acknowledged health status, daily life, physiological function, pain frequency, and pain strength. The total health status, physical function status, social function status, health awareness status, daily life and physiological health status of the group I was lower than those of the group II and III. Also, the health status of group I was higher than the others in physiological function, pain status and pain strength; group II in depression, physical function and social function; group III in strength, pain frequency, social function, and total health status.

In the subject's health status according to the family function, in almost all the domains except that normal function family's pain frequency was high but its pain strength was low, the health status of the normal function family was higher than that of the dysfunctional family, in the total health status, physical health status, emotional health status, and the domain of the sex life and health awareness status. This means that there is a relationship between self care ability and family function.

## CONCLUSION

The subjects' total health status was different depending on age, sex, monthly income, perceived health status, known functional disorder, and disease. At all health status domains, the group I (intensive care) of visiting health need care was very lower than the other groups. The severe dysfunctional family was lower than lightly dysfunctional family and normal functional family at all health status domains. This study is suggestive that nurses should consider subjects' general characteristics, self care ability, and family function in nursing interventions for the elderly.

## References

- Cheong, Y. S. (1995). Impact of illness on the family function. *J Korean Acad Fam Med*, 16(12), 814-823.
- Choi, J. H., Shin, H. C., Choi, H. L., Kim, B. S., & Won, J. W. (2000). The development of the Korean family function assessment tool. *J Korean Acad Fam Med*, 21(8), 994-1005.
- Choi, J. H., Shin, H. C., Choi, H. L., Kim, B. S., & Won, J. W.

- (2002). The reliability and validity of the Korean family function assessment tool. *J Korean Acad Fam Med*, 23(3), 292-300.
- Gardner, W., Nutting, P., Kelleher, K.J., Werner, J. J., Farley, T., Stewart, L., Hartsell, M., Orzano, A.J. (2001). Does the Family APGAR Effectively Measure Family Functioning?. *J Fam Pract*, 50(1), 19-25.
- Jang, E.H., Kim, H.J., Kwon, K.N., Chung, K.A., Kim, Y.H., & Lee, I.H. (2004). A study on physical health statue and health behavior of the elderly who live alone and who live with family. *J Korean Acad fundam Nurs*, 33, 91-104.
- Jang, S.O. (1996). A Study for development of family health assessment tool, Unpublished master's thesis, University of Ewha, Seoul, Korea.
- Jun, J. Y., Kim, S.A., Park, W. S., & Oh, M. K. (2002). The difference of health status between urban and rural elderly. *J Korean Acad Fam Med*, 23(11), 1348-1358.
- Kang, S. K. (1984). A study of family APGAR scores for evaluating family function. *J Korean Acad Fam Med*, 5(12), 6-13 .
- Kim, H. K., Jang, S. H., Lee, S. M., & Chung, E. S. (1991). A study on family APGAR score and FACES III of the patients of depression clinical psychologist. *Family Physician*, 126(7), 36-45.
- Kim, H. R. (2003). Health status among community elderly in Korea. *J Korean Acad Nurs*, 5(1), 17-28.
- Kim, J. S. (2001). A study on the health Status and health promoting behavior of older adults in a rural area. *J Korean Comm Nurs*, 12(1), 187-201.
- Kim, K.B., Jeon, E.Y. (1998). The impact of perceived health condition and practiced health promotion life style on the satisfaction of life in adult. *J Korean Acad Adult Nurs*, 10(3). 548-558.
- Korea Health Industry Development Institute: KHIDI (2003). Evaluation & development in metropolitan of home care service and operating system. 168~169.
- Korea Institute for Health and Social Affairs; KIHSA (2002). Retrieved July 20, 2005 from <http://www.kihasa.re.kr/html/jsp/sub06-01-01.jsp>.
- Korea Ministry of Labor (2003). 2003 Analysis of industrial disasters, 10-13.
- Korean National Statistical Office (2004). The annual report of cause of death. Retrieved September 28, 2005 from <http://www.kosis.nso.go.kr/Magazine/YD/VD0001>.
- Lee, B. H., Lim, J. K., Yun, D. K., Choi, Y. S., Cho, K. H., Hong, M. H., Jang, J. A., & Park, J. S. (2002). The relationship between headache, depressive tendency and family function. *J Korean Acad Fam Med*, 23(4), 496-504.
- Lee, H. J. (2001). The comparative study on health status of elderly attendants and non-attendants at senior welfare service center. Unpublished master's dissertation, Seoul National University of Korea, Seoul.
- Lee, J. H. (2003). Evaluation Report of the metropolitan city visiting health care project in 2003. Saha-Gu health center.
- Lee, K. J. (1987). A study on the correlation between the family functioning and the compliance with sick role behavior of diabetic mellitus patients. Unpublished master's thesis, University of Ewha, Seoul, Korea.
- Mengel M. (1987). The use of the family APGAR in screening for family dysfunction in a family practice center, *J Fam Pract*, 24, 394-398.
- Neabel, B., Fothergill-Bourbonnais, F., Dunning, J. (2000). Family assessment tools: A review of the literature., *Heart Lung*, 29(3), 196-209
- Oh, H. K., Kim, K. B., Lee, K. H., & Suk, S. H. (2002). Effects of meridian exercise on health status, depression and self-esteem for institutionalized elderly people. *Korean Acad Fund Nurs*, 9(3), 388-398.
- Shin, H. C., Kim, C. H., Cho, B. L., Won, J. W., Song, S. W., Park, Y. K., Yun, Y. H., Chung, S. P. (2002). The development of a Korean health status measure for the elderly. *J Korean Acad Fam Med*, 23(4), 440-57.
- Shin, K.R. (2003). Evaluation Report of the metropolitan city visiting health care project in 2003. Dongjak-Gu health center.
- Shin, K.R., & Kim, J.S. (2004). A study on health concern self-rated health, health statue, and health promotion behavior of elderly weomen in urban areas. *J Korean Acad Nurs*. 34(5). 869-880.
- Smilkstein G. (1984). The physician and family function assessment. *Fam Syst Med*, 2, 263-79.
- Smucker, W.D., Wildman, B.G., Linda, Lynch, T. R. (1995). Relationship between the family APGAR and behavioral problems in children. *Arch Fam Med*, 4, 535-539.
- Yun, B. B. & Kuok, G. W. (1985). The study on family APGAR score as the evaluation method of the family function. *Family Physician*, 6(12), 13-17.