

: 2 1 1998

가 , \* , 가 가 †

· \* . † . \*

가 가 ,

1990 71.3 가 , , ,

2000 74.3 가 가 . , , , , , ,

. 65 2000 가 , , , , , , ,

7%, 2020 14% 가 가 ,

1) 가 가 ,

1) 가 ,

2) , 2,5,6) 7) ,

3%, 15% 8) , 9) 10) 11) ,

24%가 가, 가<sup>12)</sup>

, 10% 가 1% .

가 3) .

47% 가 13) .

4) .

가 , 1995 , 가 , 2) ,

가

가 14)

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: , 가 146-92, 15) ,

가

Tel: (02) 3497-3480 , 가

2) , 2 (cluster sampling)

15) , . 1

가 가 2 1 1 55 26

가 . 60 31.6% 2,830

50%가 301

10% 13) . 2 .

16) , 17) , 18,19)

1) , , , , , , , 가

**2) MMSE- K (Mini- mental Status Examination, Korean Version)**

12 30

6 12

30 . MMSE 26

normal, 19-25 suspicious cognitive decline, 18 dementic

24 ,

1 . 23

60 1997

7. 14 7. 24. 11 3) (The Brief

8 . MAST)

1937 12 10 29 6

31 60 8,963 , 6

Geriatric depression scale

4) Geriatric Depression Scale (GDS)- Short form  
 15 5 , 6 , , t-

5) (IADL- Instrumental Activities of Daily Living)  
 ( 0.7 ) 가 가  
 ADL

6) (Social support network)  
 (social network)  
 (social support) 1 . 71  
 가 1/3, 가 2/3 .  
 가 50.8% 가  
 37.2% 88%가  
 가 56.1%  
 32  
 2 , 2 500  
 27  
 가 300 가 가

7) 가(Mini- Nutritional assessment)  
 가 가 80.8%  
 가 1  
 8.3% 가 1  
 가 24.9% (Table 1).  
 가, 가  
 24 가 4 , 17  
 23.5  
 17 23  
 46.5% 24  
 40.5% . GDS  
 3 . 6.9 ± 3.7 5  
 34.9%  
 56.5% . MAST  
 가  
 t- 가 70.1% 6  
 4.0% (Table 2).

**Table 1.** Sociodemographic characteristics.

Characteristics		Frequency (%)
Age (years)	mean $\pm$ SD	71.2 $\pm$ 7.1
Sex	male	101 (33.6)
	female	200 (66.4)
Education	uneducated	150 (50.8)
	elementary	113 (37.2)
	junior high	23 ( 7.6)
	high	5 ( 1.6)
	above college	3 ( 1.0)
	no response	5 ( 1.6)
Marital status	married	169 (56.1)
	separated	122 (40.5)
	a second marriage	5 ( 1.7)
	others	2 ( 0.6)
	no response	3 ( 1.0)
Income (10,000 won)	mean $\pm$ SD	32.1 $\pm$ 49.9
Expenditure (10,000 won)	mean $\pm$ SD	26.6 $\pm$ 35.2
Religion	none	98 (32.6)
	protestant	71 (23.6)
	buddhism	91 (30.2)
	catholic	36 (12.0)
	others	2 ( 0.7)
	no response	3 ( 1.0)
Type of residency	own house	243 (80.8)
	lease	38 (12.6)
	lease (monthly rent)	9 ( 3.0)
	others	6 ( 2.0)
	no response	5 ( 1.7)
Number of persons in the household	1	25 ( 8.3)
	2	75 (24.9)
	3	35 (11.6)
	4	31 (10.3)
	5	58 (19.3)
	6	70 (23.2)
	no response	7 ( 2.3)

3. 3.6 가 (p<0.01). 가  
70 가  
6.1  $\pm$  3.6, 7.3  $\pm$  70 6.2  $\pm$  3.7, 70 7.5  $\pm$  3.5

**Table 2.** Characteristics of mental state.

Mental state		Frequency (%)	Mean $\pm$ SD
MMSE-K	23	140 (46.5)	22.7 $\pm$ 4.5
	24	122 (40.5)	
	no response	39 (13.0)	
GDS	5	105 (34.9)	6.9 $\pm$ 3.7
	6	170 (56.5)	
	no response	26 ( 8.6)	
MAST	5	78 (25.9)	2.7 $\pm$ 4.2
	6	12 ( 4.0)	
	no response	211 (70.1)	

**Table 3.** GDS score by sociodemographic variables.

Demographics	GDS Score (mean $\pm$ SD)	t-value	p-value
Sex		-2.72	0.0069
male (N=91)	6.1 $\pm$ 3.6		
female (N=184)	7.3 $\pm$ 3.6		
Age		-2.93	0.0037
70 (N=133)	6.2 $\pm$ 3.7		
>70 (N=141)	7.5 $\pm$ 3.5		
Education		4.92	0.0000
uneducated (N=141)	7.9 $\pm$ 3.6		
educated (N=132)	5.8 $\pm$ 3.4		
Marital status		-2.22	0.0267
married (N=158)	6.5 $\pm$ 3.7		
else (N=117)	7.5 $\pm$ 3.5		
Income (10,000 won)		3.55	0.0005
10 (N=118)	7.6 $\pm$ 3.7		
>10 (N=114)	6.0 $\pm$ 3.4		
Expenditure (10,000 won)		3.50	0.0006
10 (N=120)	7.4 $\pm$ 3.6		
>10 (N=123)	5.8 $\pm$ 3.4		
Religion		1.74	0.0819
not believe (N=96)	7.4 $\pm$ 3.6		
believe (N=179)	6.6 $\pm$ 3.7		
Type of residency		-2.23	0.0261
own (N=225)	6.6 $\pm$ 3.6		
lease (N=48)	7.9 $\pm$ 3.6		

±3.6, 0.01).	5.8±3.4 가 7.5±3.5	(p<0.01). 가 6.5±3.7 가	7.9 (p<	가 6.6±3.7 (p>0.05). 가 6.6±3.6, (p<0.05)(Table 3).	가 7.9±3.6	가 가
(p<0.05). 10 3.4 10 3.6, 10	10 7.6±3.7, 10 (p<0.01). 10 5.8±3.4	가 가 가 7.4±3.6,	6.0± 7.4±	4. 7.4±3.4, 가 3	, , 6.0±4.0 (p<0.01).	가 8.0±3.2

**Table 4.** GDS score by physical state, mental state, nutritional state.

	GDS Score (mean ± SD)	t-value	p-value
Physical illness		-2.96	0.0034
yes (N=171)	7.4 ± 3.4		
no (N=99)	6.0 ± 4.0		
Number of drugs current use		-2.32	0.0206
3 (N=51)	8.0 ± 3.2		
<3 (N=223)	6.7 ± 3.7		
Has suffered stress in the past 3 months		4.18	0.0000
yes (N=57)	8.6 ± 3.5		
no (N=216)	6.4 ± 3.6		
Subjective self perception of health compared with other people of same age		5.82	0.0000
not as good, does not know (N=86)	8.7 ± 3.4		
as good, better (N=186)	6.0 ± 3.5		
IADL		-3.93	0.0001
independent in all items (N=156)	6.1 ± 3.6		
dependent in at least 1 item (N=109)	7.9 ± 3.6		
MMSE-K		2.62	0.0095
23 (N=132)	7.4 ± 3.5		
24 (N=115)	6.2 ± 3.6		
MAST		-0.91	0.3648
5 (N=72)	5.6 ± 3.4		
6 (N=12)	6.6 ± 3.8		
MNA		8.10	0.0000
24.0 (N=147)	5.4 ± 3.3		
23.5 (N=112)	8.7 ± 3.3		

3	6.7 ± 3.7	24		
가	(p<0.05).	3	6.2 ± 3.6	(p<
가	8.6 ± 3.5,	6.4	0.01).	MAST
± 3.6	가	가	가	6
(p<0.01).				5.6 ± 3.4
			6.6 ± 3.8	
	8.7 ± 3.4			(p>0.05).
		6.0 ± 3.5	가(Mini-nutritional Assessment)	24
가	(p<0.01).		5.4 ± 3.3	, 23.5
9				8.7 ± 3.3
	6.1 ± 3.6	1		(p<0.05)(Table 4).
	7.9 ± 3.6			
가	가	(p<0.01).	5.	
MMSE-K가	23			
		7.4 ± 3.5		

**Table 5.** GDS score by IADL.

IADL	GDS Score (mean ± SD)		t-value	p-value
	Independent	Dependent		
Using telephone	6.6 ± 3.6	8.0 ± 3.7	-2.62	0.0093
Ability to travel	6.6 ± 3.7	8.6 ± 3.3	-2.98	0.0032
Shopping	6.7 ± 3.7	8.8 ± 3.3	-3.12	0.0020
Cooking	6.6 ± 3.6	9.6 ± 3.3	-4.18	0.0000
Cleaning	6.6 ± 3.6	9.1 ± 3.2	-3.33	0.0010
Doing housework	6.5 ± 3.6	8.6 ± 3.5	-3.55	0.0004
Doing laundry	6.5 ± 3.6	9.2 ± 3.2	-4.26	0.0000
Managing medication	6.6 ± 3.6	9.2 ± 3.1	-3.49	0.0005
Managing money	6.7 ± 3.6	7.9 ± 4.0	-1.73	0.0839

**Table 6.** GDS score by social support.

Social support	Number of supported items	GDS Score (mean ± SD)	t-value	p-value
Emotional (3 items)	<3 (N=161)	7.3 ± 3.6	2.45	0.0150
	3 (N=111)	6.2 ± 3.8		
Social activity (2 items)	<2 (N=121)	7.6 ± 3.6	3.15	0.0018
	2 (N=151)	6.3 ± 3.6		
Instrumental (3 items)	<3 (N=82)	7.7 ± 3.6	2.37	0.0185
	3 (N=190)	6.5 ± 3.6		

**Table 7.** Stepwise multiple regression of depression on selected variables.

Variable	B	SE	Partial R2	Model R2	P value
MNA	-0.2429	0.0940	0.2121	0.2121	0.0001
IADL	0.1326	0.0793	0.0414	0.2536	0.0019
Education	-1.0460	0.4820	0.0253	0.2789	0.0133
Current illness	1.0580	0.4967	0.0174	0.2963	0.0377
Religion	-1.0039	0.4834	0.0124	0.3087	0.0779
MMSE-K	-0.1045	0.0559	0.0127	0.3214	0.0723
Health	-1.1246	0.6098	0.0115	0.3328	0.0853
Stress	-1.0304	0.6562	0.0094	0.3422	0.1182
Intercept	17.6632	2.9407			

MNA: 1-30 points

IADL: sum of 9 item's points (1; independent, 2; partial dependent, 3; total dependent)

Education: 1; uneducated 2; educated

Current illness: 1; no 2; yes

Religion: 1; not believe 2; believe

MMSE-K: 1-30 points

Health: 1; not as good, does not know 2; as good, better

Stress: 1; no 0; yes

가

가 (p<0.01), 7.  
(p>0.05)(Table 5). t-

Geriatric depression scale

6.

6.2 ± 3.8

7.3 ± 3.6

(p<0.05).

가

(p<0.05),

(p>0.05).

9가

34.2% (Table 7).

6.3 ± 3.6

7.6 ± 3.6

(p<0.01).

가

6.5 ± 3.6

7.7 ± 3.6

(p<0.05)(Table 6).

가

(Geriatric Depression Scale, GDS) Sheikh  
Yasavage<sup>20)</sup>, 30

(Geriatric Depres

sion Scale)

15



. Yasavage 6 29) 가 가  
 21) 30 가  
 (Geriatric Depression Scale Korean Ver sion) , , 가  
 5 가 30),  
 (Geriatric depres 가 , 28,31),  
 sion scale, GDS) , 가  
 6 가 22)  
 62.8% 가 가  
 가 가  
 가 가  
 가 가  
 가 (p<0.01). 가  
 가 MMSE-K 23 가  
 가 , , , (p<0.05), MMSE 가  
 가 2), 32)  
 22,23) 가  
 가 24) 가 가  
 가 가 25) 가 Jorm 32) 가  
 가 , , 33)  
 가 가  
 26) 가  
 27) 가  
 28) 가 가

가

가 (p<0.01)

가 2/3가

70% MAST 6

가 39)

가 40), 41) 가

가

42)가

가 , ,

3 , ,

3 , 3 가

가

가 (p<0.01).

34), 35)

가 , ,

가 , 가 43)

36), 가

가

37)가

가

가

가 Bazargan 23)

Lee 44)

가

가 31)

가

가 , ,

가 , 가

가 38), 가

가

가 , 가 60 1997. 7  
 14 7 24 11 2  
 45) (cluster sampling)  
 t- 가, Mini Mental Status Exam (MMSE-K)  
 Geriatric depression Scale (GDS),  
 (Brief MAST),  
 (IADL),  
 (p<0.05), t-  
 (p>0.05). 9가 :  
 34.2% 71.2 ± 7.1  
 19,46) 101 (33.6%), 200 (66.4%) . GDS  
 6.9 ± 3.7  
 6 56.5% .  
 t-test GDS , ,  
 , , , , ,  
 , IADL, ,  
 가 (p<0.05). , IADL,  
 가 (p<0.05), , ,  
 (p>0.05). 34.2%

= Abstract =

### Factors related to depression of elderly in a Korean rural community

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Gachon Medical College

**Background :** Depression is prevalent and a serious disorder in the elderly that interferes with social and physical function. It is associated with significant morbidity and a high mortality rate from suicide. Depression is highly treatable disease, but it remain largely unrecognized and untreated among the elderly. This study evaluate the factors related to depression of elderly, to be used as basic reference for management program in the community.

**Methods :** The cross-sectional study evaluates the depression of community-living elderly, aged 60 and older, in a Korean rural community. The subject were selected from a two stage cluster sampling. Questionnaire contained demographics, Geriatric Depression Scale (GDS), Mini-Nutritional Assessment (MNA), Mini-Mental Status Exam-Korean (MMSE-K), IADL, Social support network. T-test and multiple stepwise regression were constructed to explore the factors related to depression.

**Results :** Mean age was  $71.22 \pm 7.1$  with 101 male subjects and 200 female subjects. The mean GDS score was  $6.9 \pm 3.7$  and 56.5% of subjects were suggested depression (above 5 point on GDS). The mean score from the GDS showed significant differences in terms of following factors: gender, age, education, marital status, income, expenditures, type of residency, cognitive function, presence of disease, number of medications, stress, subjective self perception of health, IADL, nutrition, emotional support, social activity support, instrumental support ( $p < 0.05$ ). In the multiple stepwise regression analy-

sis on depression, nutrition, IADL, education, presence of disease were selected as highly correlated variables ( $p < 0.05$ ), and religion, cognitive function, subjective self perception of health, stress were also selected ( $p > 0.05$ ). These variables explained 34.2% of depression.

**Conclusion :** Nutritional status, cognitive function, physical state, functional state, social support network, demographic characteristics were related to depression in the elderly.

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**Key Words :** depression, nutrition, social support network, function, cognitive function

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