

, 가 * , †

· · · · · * · †

Factors Related with Quality of Life in Epileptic Patients

Ju Hwa Lee, Yong Won Cho, M.D., Sang Do Yi, M.D., Jeung Geun Lim, M.D.,
Hyung Lee, M.D., Jun Lee, M.D., Hyon Ah Yi, M.D.,
Young Sung Suh, M.D.*, Mi Young Lee, M.D.†

Department of Neurology, Family Medicine, and Preventive Medicine†,
Keimyung University School of Medicine, Taegu, Korea*

Abstract : Epilepsy is a chronic condition, which is known to have negative effects on an individual's quality of life. We evaluated major variables associated with the quality of life of epileptics in Korea. We evaluated the quality of life in epilepsy (QOLIE-31) of 202 epileptic adults at Keimyung University Dongsan Medical Center. Eight of the most serious QOLIE concerns were as follows: seizure worry, overall QOL, emotional well-being, energy and fatigue, cognitive functioning, medication effects, social functioning, and overall health. We assessed the correlation between QOLIE concerns and the clinical parameters such as age, gender, marital status, duration of education, seizure onset, duration of illness, number of antiepileptic drugs, etc. The mean subscores of QOLIE-31 items were 54.9 (medication effects), 52.0 (energy-fatigue), 50.1 (overall QOL), 42.4 (seizure worry), 41.5 (emotional well-being), 36.3 (social functioning), and 30.9 (cognitive functioning). We found significant differences in many aspects of quality of life with respect to age (overall QOL and energy-fatigue), gender (seizure worry, emotional well-being, medication effects and overall health), education (cognitive functioning and social functioning), economic status (overall QOL, emotional well-being and overall health), number of antiepileptic drugs (emotional well-being) and frequency of seizure (energy-fatigue). We identified several related factors for poor QOL outcomes in patients with epilepsy. These results provide informations about patients with epilepsy that may help with their emotional support, as well as drug treatment.

Key Words : Epilepsy, Quality of life, Socioeconomic factors

[9].

가

25 35 가

[1,2], 가

100 가 [10-13].

가

[9,10], 가

[3]. 가

가

1.

가 (quality of life, QOL) [4-6]. 가

2000 12 2001 1 가

225

(function) (WHO) [7].

15 202

2.

가

가

[8]. 가

3. 가 (multiple linear regression analysis)
 가 ‘ (Quality of life in epilepsy development group) ’ -31
 (Quality of Life in Epilepsy-31, QOLIE-31)

(multiple linear regression analysis)
 SPSS window 10.0
 P 0.05

가
 QOLIE-31 가
 [10,14-17]. QOLIE-31 7
 (seizure worry) ’ 5 , ‘
 (overall QOL) ’ 2 , ‘
 (emotional well-being) ’ 5 , ‘ -
 (energy-fatigue) ’ 4 , ‘
 (cognitive functioning) ’ 6 , ‘
 (medication effects) ’ 3
 (social functioning) ’ 5 ,
 0 100
 가 가
 가
 (overall health) ’ 31
 ‘ (100) ’ ‘
 (0) ’ 10

1.
 202 102
 (50.5%), 100 (49.5%)
 31.0(±10.1)
 11.5(±2.9) 102
 (50.5%), 84 (41.6%),
 7 (3.5%), 가 9 (4.5%)
 88 (43.6%)
 20.11(±8.8)
 10.9(±6.8)
 138 (68.3%),
 64 (31.7%)
 1가 84
 (41.6%), 2가
 52 (25.7%), 3가
 66 (32.7%)
 3 110 (54.5%) 3
 92 (45.5%) (Table 1).

4.

2. QOLIE-31

QOLIE-31
 t-test
 QOLIE-31
 Pearson

QOLIE-31
 ‘ 가 54.9(±18.1), ‘ - ‘
 52.0(±20.0), ‘ QOL ’ 50.1(±11.9),
 ‘ 42.4(±18.0), ‘
 ‘ 41.5(±18.4), ‘ ‘ 36.3(±
 15.9) ‘ ‘ 30.9(±15.1)
 ‘ ‘ 59.4(±19.3)

Table 1. Demographic and disease characteristics

Parameter	Mean (\pm SD)	Number (%)
Age (year)	31.0 (\pm 10.1)	
Gender		
Male		102 (50.5)
Female		100 (49.5)
Education (year)	11.5 (\pm 2.9)	
Below high school		55 (27.2)
High school		47 (23.3)
Above high school		35 (17.3)
NA*		65 (32.2)
Marriage		
Never married		102 (50.5)
Married		84 (41.6)
Divorced or widowed		7 (3.5)
NA*		9 (4.5)
Economic status		
Middle		100 (49.5)
<Middle		79 (34.1)
NA*		33 (16.3)
Age at onset of epilepsy (year)	20.1 (\pm 8.8)	
Duration of epilepsy (month)	10.9 (\pm 6.8)	
Number of antiepileptic drugs	2.1 (\pm 1.1)	
One		84 (41.6)
Two		52 (25.7)
Three		66 (32.7)
Type of seizure		
Generalized		64 (31.7)
Partial		138 (68.3)
Overall seizure frequency	2.5 (\pm 0.9)	
< 3 per year		110 (54.5)
3 per year		92 (45.5)

* NA: not available; SD: standard deviation.

3.

가 36 가
 가 3 3
 가 (Table 2). 가 (Table 3).
 4.

Table 2. Comparisons among subscale scores of QOLIE-31 by demographic characteristics

Parameter	Seizure worry	Overall QOL	Emotional well-being	Energy-fatigue	Cognitive functioning	Medication effects	Social function	Overall health
Age	0.161	0.049	0.188	0.128	0.160	-0.088	0.111	-0.137
Gender								
Male	38.7 ± 17.6	49.0 ± 12.6	38.4 ± 15.9	47.9 ± 17.4	30.8 ± 15.3	57.2 ± 17.6	35.8 ± 14.5	62.5 ± 17.8
Female	46.3 ± 18.2	51.7 ± 10.7	44.4 ± 20.7	55.7 ± 21.9	31.9 ± 15.4	52.6 ± 18.3	37.0 ± 17.1	55.5 ± 20.5
Women								
Child-bearing (18-35 years)	42.1 ± 17.6	49.3 ± 12.6	41.0 ± 18.8	50.3 ± 20.6	31.2 ± 15.9	54.9 ± 17.8	36.2 ± 15.8	60.8 ± 16.8
No child-bearing (36 years)	42.8 ± 19.1	51.5 ± 10.3	42.1 ± 18.4	54.3 ± 19.0	30.8 ± 14.9	54.7 ± 18.7	36.3 ± 16.1	56.5 ± 22.5
Education								
Below high school	45.3 ± 21.2	48.5 ± 12.9	44.4 ± 19.7	54.1 ± 22.7	35.9 ± 16.4 [†]	53.2 ± 19.6	38.3 ± 16.5 [†]	57.7 ± 18.6
High school	38.9 ± 13.6	51.0 ± 8.7	43.7 ± 16.4	55.0 ± 15.2	31.7 ± 15.5	59.3 ± 14.4	41.2 ± 15.7	58.3 ± 16.3
Above high school	41.4 ± 15.9	52.0 ± 7.0	36.6 ± 15.2	50.0 ± 17.9	24.1 ± 13.2	56.2 ± 19.8	31.5 ± 14.5	59.8 ± 18.4
Marriage								
Never married	42.8 ± 18.7	51.3 ± 11.1	43.0 ± 18.6	54.0 ± 19.9	32.3 ± 14.3	54.4 ± 19.6	39.0 ± 16.6	57.9 ± 19.1
Married	39.6 ± 16.1	49.6 ± 12.6	38.0 ± 17.0	49.1 ± 18.3	29.7 ± 16.9	56.2 ± 16.4	35.6 ± 15.5	60.9 ± 18.1
Economic status								
Middle class	39.1 ± 17.5	52.2 ± 9.3	38.6 ± 18.3	49.9 ± 19.4	29.8 ± 13.3	56.6 ± 17.8	38.3 ± 14.6	62.7 ± 17.3
<Middle class	44.0 ± 17.4	47.3 ± 11.5	44.5 ± 18.6	56.4 ± 19.3	33.4 ± 18.3	54.7 ± 17.3	34.8 ± 17.4	53.3 ± 19.5

[†]P <0.05 in t-test; [†]P <0.05 in ANOVA; Values of age are Pearson's correlations and the other values are mean score ± standard deviation.

Table 3. Comparisons among subscale scores of QOLIE-31 by epileptic characteristics

Parameter	Seizure worry	Overall QOL	Emotional well-being	Energy-fatigue	Cognitive functioning	Medication effects	Social function	Overall health
Age at onset of epilepsy	0.083	0.080	0.100	0.079	0.049	-0.064	0.003	-0.182
Duration of epilepsy	0.118	0.015	0.145	0.086	0.133	-0.071	0.117	-0.012
Number of antiepileptic drugs								
One	40.4 ± 16.7	51.1 ± 10.4	38.8 ± 17.6 [†]	51.7 ± 21.3	28.6 ± 14.9	55.0 ± 19.7	34.7 ± 16.4	60.5 ± 19.0
Two	44.9 ± 20.2	51.0 ± 11.5	40.2 ± 18.1	52.6 ± 20.1	31.0 ± 15.4	55.9 ± 18.5	36.6 ± 16.5	55.0 ± 24.2
Three	43.0 ± 18.1	48.6 ± 13.4	46.1 ± 19.5	51.7 ± 18.3	34.1 ± 15.7	53.6 ± 15.7	38.1 ± 14.6	59.9 ± 15.2
Type of Seizure								
Generalized	43.7 ± 18.4	50.9 ± 10.8	40.8 ± 19.5	53.6 ± 20.6	30.1 ± 15.8	53.7 ± 19.5	32.3 ± 15.8 [†]	58.4 ± 20.1
Partial	41.9 ± 18.2	50.1 ± 12.2	41.6 ± 18.3	50.9 ± 19.9	31.9 ± 15.2	55.5 ± 17.4	38.3 ± 15.5	59.3 ± 19.2
Overall seizure frequency								
<3 per year	38.1 ± 15.5 [*]	50.3 ± 11.2	37.6 ± 17.6 [*]	49.0 ± 19.0 [*]	28.1 ± 14.4 [*]	56.4 ± 19.1	37.3 ± 16.1	60.3 ± 19.5
3 per year	47.6 ± 19.8	50.0 ± 12.4	46.2 ± 18.8	55.4 ± 20.7	34.7 ± 16.0	52.9 ± 16.8	35.0 ± 15.6	57.5 ± 19.3

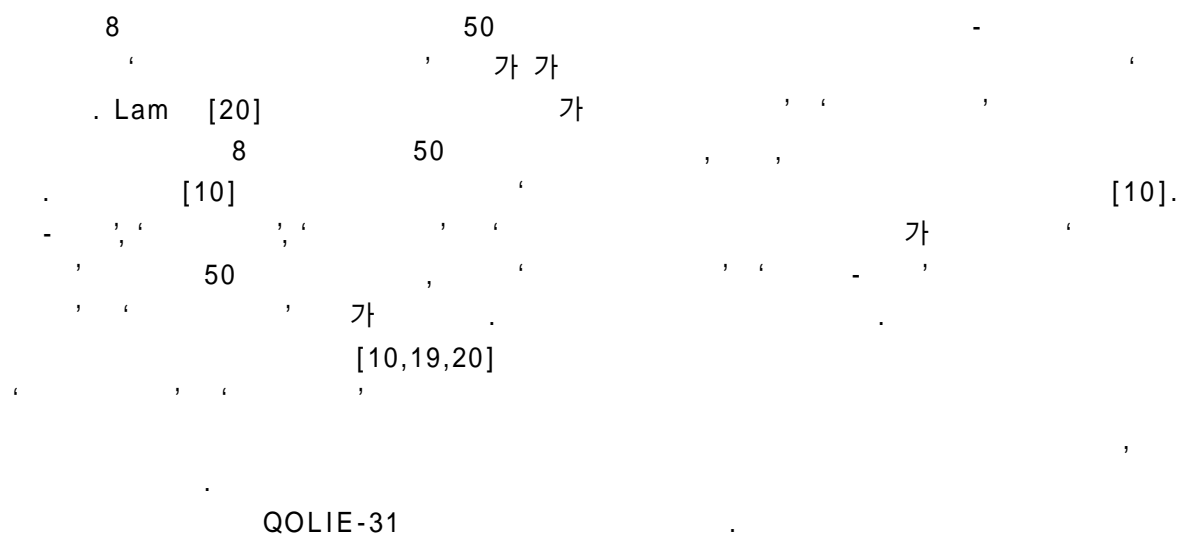
*P <0.05 in t-test; †P <0.05 in ANOVA; Values of age at onset of epilepsy and duration of epilepsy are Pearson's correlation coefficient and the other values are mean score ± standard deviation.

(Table 4).

1-6%[1]
가,
가,
가,
가,
가,
가,
가
가
가 [5,6].
가
[11,13,15,18].
Ruggles [19] QOLIE-31

Table 4. Multiple liner regression analysis for QOL subscores and its related factors

Dependent variable	Independent variables	β	P value
Seizure worry	Sex (reference: male)		
	female	0.321	4.978 ~ 16.671
Overall QOL	Age	0.204	0.019 ~ 0.368
	Economic status (reference: middle class)		
	< middle class	-0.235	-8.232 ~ -1.017
Emotional well-being	Sex (reference: male)		
	female	0.287	4.268 ~ 16.665
	Economic status (reference: middle class)		
	< middle class	0.246	2.822 ~ 15.556
Energy-fatigue	Number of antiepileptic drugs (reference: one)		
	three	0.212	1.624 ~ 14.728
	Age	0.227	0.094 ~ 0.745
Cognitive functioning	Overall seizure frequency (reference: < 3/ year)		
	3/ year	0.222	1.775 ~ 15.283
Medication effects	Education (reference: below high school)		
	above high school	-0.273	-15.704 ~ -3.378
Social function	Sex (reference: male)		
	female	-0.213	-13.729 ~ -1.201
Overall health	Education (reference: below high school)		
	above high school	-0.268	-15.562 ~ -3.214
	Sex (reference: male)		
	female	-0.219	-13.712 ~ -1.605
	Economic status (reference: middle class)		
	<middle class	-0.311	-17.323 ~ -4.940



가
가
가
[17,21]
가

가 'QOLIE-31'
가
가

[21].
가
[10,17]
가
가
가

1. ; 2000,P212-23.
2. Lee BI. Drug therapy in epilepsy. *Drug information* 1990;5:41-4.
3. Devinsky O, Penry JK. Quality of life in epilepsy: the clinician's view. *Epilepsia* 1993;34 suppl4:S4-7.
4. 1988;27:1035-41.
5. Hertshorm JC, Bayers VL. Impact of epilepsy in quality of life. *J Neurosc Nurs* 1992;24(1):24-9.
6. Coling JA. Epilepsy and well being. *Soc Sci Med* 1990;31:165-70.
7. Devinsky O, Cramer JA. Introduction: quality of

가
[11,22-28]
가
가
가
가
가

- life in epilepsy. *Epilepsia* 1993;**34**suppl4:S1-3.
8. Pandilla GV, Grant MM. Quality of life as a cancer nursing outcome variable. *Adv Nur Sci* 1985;**8**:45-60.
 9. , . QOL 가. 1997;**1**:52-9.
 10. , , , , . QOL . 2000;**18**:156-61.
 11. Baker GA, Gagnon D, McNulty P. The relationship between seizure frequency, seizure type and quality of life: findings from three European countries. *Epilepsy Res* 1998;**30**:231-40.
 12. O'Donoghue MF, Goodridge DM, Redhead K, Sander JW, Duncan JS. Assessing the psychosocial consequences of epilepsy: a community-based study. *Br J Gen Pract* 1999;**49**:211-14.
 13. Jacoby A. Epilepsy and the quality of everyday life. *Soc Sci Med* 1992;**34**:657-66.
 14. , . QOLIE-31 . 2002;**6**:45-52.
 15. Cramer JA, Perrine K, Devinsky O, Bryant-Comstock L, Moador K, Hermann B. Development and cross-cultural translation of a 31-item quality of life in epilepsy inventory. *Epilepsia* 1998;**39**:81-8.
 16. Torres X, Arroyo S, Araya S, de Pablo J. The Spanish Version of Quality of Life in Epilepsy inventory(QOLIE-31): translation, validity, and reliability. *Epilepsia* 1999;**49**:1299-304.
 17. Suurmeijer TP, Reuvekamp MF, Aldenkamp BP. Social function, psychological functioning and quality of life in epilepsy. *Epilepsia* 2001;**42**:1160-8.
 18. Birbeck GL, Kim S, Hays RD, Vickrey BG. Quality of life measures in epilepsy: how well can they detect change over time? *Neurology* 2000;**54**:1822-7.
 19. Ruggles KH, Haessly SM, Berg RL. Prospective study of seizures in the elderly in the Marshfield Epidemiologic Study Area (MESA). *Epilepsia* 2001;**42**(12):1594-9.
 20. Lam J, Rozsavolgyi M, Soos G, Vincze Z, Rajna P. Quality of life of patients with epilepsy (Hungarian survey). *Seizure* 2001;**10**(2):100-6.
 21. Thompson PJ, Oxley J. Socioeconomic accompaniments of severe epilepsy. *Epilepsia* 1988;**29** suppl1:S9-18.
 22. Leidy, NK, Elixhauser A, Vickrey B, Means E, Willian MK. Seizure frequency and health-related quality of life of adults with epilepsy. *Neurology* 1999;**53**:162-6.
 23. Rapp S, Shumaker S, Smith T, Gibson P, Berzon R, Hoffman R. Adaptation and evaluation of the Liverpool Seizure Severity Scale and Liverpool Quality of Life battery for American epilepsy patient. *Qual Life Res* 1998;**7**:356-63
 24. . 1982;**21**:455-61.
 25. , . MMPI . 1989;**28**:1009-21.
 26. Altshuler L. *Depression and Epilepsy*. Epilepsy and Behaviour. New York: John Wiley & Sons ; 1991,P.47-65.
 27. Mendez MF, Cummings JL, Benson DF. Depression in epilepsy. *Arch Neurol* 1986;**43**:766-70.
 28. Robertson MM, Trimble MR, Townsend HR. Phenomenology of depression in epilepsy. *Epilepsia* 1987;**28**:364-72.