Archives of Epilepsy

Original Article

Health-Related Quality of Life in Patients with Epilepsy

Sezin Alpaydın Baslo[1], Songül Şenadım[2], Betül Tekin[1], Zeynep Ezgi Balçık[3], Mücahid Erdoğan[4], Ayten Ceyhan Dirican[1], Hüseyin Sarı[1], Dilek Ataklı[1]

[1]Department of Neurology, University of Health Sciences, Bakırköy Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital, İstanbul, Turkey
[2]Department of Neurology, İstanbul Aydın University, Faculty of Medicine, İstanbul, Turkey
[3]Department of Neurology, Karabük University, Training and Research Hospital, Karabük, Turkey
[4]Tosya State Hospital, Kastamonu, Turkey

Cite this article as: Alpaydın Baslo S, Şenadım S, Tekin B, et al. Health-related quality of life in patients with epilepsy. *Arch Epilepsy.* 2022;28(1):14-17.

Corresponding Author: Sezin Alpaydın Baslo E-mail: sznalpaydin@gmail.com

Received: September 17, 2021 **Accepted:** October 18, 2021

DOI: 10.54614/ArchEpilepsy.2022.33154

Abstract

Objectives: This study aimed to evaluate health-related quality of life in patients with epilepsy and to investigate the role of sociodemographic attributes and clinical features.

Methods: Two hundred five patients diagnosed with epilepsy and under the follow-up of epilepsy outpatient clinics of our tertiary center were enrolled. Gender, age, age of epilepsy onset, disease duration, seizure type, epilepsy etiology, frequency of seizures, anti-seizure drugs, electroencephalography, and magnetic resonance imaging findings were noted. The Short Form-36, valid and reliable in our country, was used to assess health-related quality of life. The Short Form-36 physical and mental scores were calculated.

Results: All Short Form-36 subscores of patients were low when compared to the normative data of our country. Some physical and mental health scores of women with epilepsy were lower than the scores of men with epilepsy. All Short Form-36 subscores of patients under polytherapy were lower than the ones under monotherapy. Some quality of life scores were negatively correlated with disease duration; yet the range of age, age of epilepsy onset, seizure type, etiology of epilepsy, cranial magnetic resonance imaging, and electroencephalography findings were not significantly correlated with Short Form-36 scores.

Conclusions: This study revealed that health-related quality of life of patients with epilepsy was lower than that of healthy individuals. It should be noted that women with epilepsy, patients with longer disease duration, patients suffering from frequent seizures, and the ones under polytherapy could have a lower quality of life. Patients with epilepsy should be supported in means of quality of life and modifiable factors.

Keywords: Epilepsy, quality of life, SF-36

INTRODUCTION

Epilepsy is a common, paroxysmal, heterogeneous chronic disease with epileptic seizures. Its prognosis varies with seizure types, triggers, accompanying co-morbidities, and treatment options. The time of epileptic seizures cannot be predicted in clinical practice. Special conditions and problems such as loss of self-confidence, increase in anxiety and depression, decrease in marriage rates, difficulties in family life, social isolation, difficulty in finding a job, and some specific situations such as military service, pregnancy, and driver's license adversely affect the quality of life of patients with epilepsy and cause them to feel stigmatized.

Epilepsy treatment is basically based on seizure control in classical teaching. Epidemiological studies have shown that seizure control can be achieved in 70-80% of cases with anti-seizure drug (ASD) treatment.[1] The International League Against Epilepsy considers epilepsy as resolved for individuals with an age-dependent epilepsy syndrome who are older than the age in which this syndrome is active or those who have been seizure free for the last 10 years and have been off medications for the last 5 years.[2] Considering the psychosocial dimension of this long-term disease, it is important to increase the health-related quality of life in patients. Health-related quality of life in epilepsy has been associated with response to treatment, demographic characteristics, ASDs that are used, presence of psychiatric and/or cognitive co-morbidity, age of onset of seizure, awareness during seizure, and seizure frequency.[3-5] The aim of this study is to evaluate the quality of life in patients with epilepsy and to investigate the effects of sociodemographic and clinical characteristics on their quality of life.

METHODS

A total of 205 epilepsy patients followed in the epilepsy outpatient clinic of our center were included in the study. Those who were illiterate and those with mental retardation were excluded. Patients' gender, age, the age of onset of seizure, disease duration, seizure type, epilepsy etiology, seizure frequency, use and number of ASD, electroencephalography (EEG), and magnetic resonance imaging (MRI) findings were noted. The cases were classified as those aged 18-44 years, aged 45-64 years, and aged over 65 years. Seizure frequency was evaluated in 2 groups as those with

and without seizures in the last 1 year. In the study, "The Short Form-36" (SF-36), which is widely used, contains 36 questions, and has proven validity and reliability in our country, was used.[6-8] The patients answered the 36-item scale in written form in a separate room outside the examination room. General health (GH), physical functioning (PF), role-physical difficulty (RPD), bodily pain (BP), role-emotional difficulty (RED), social functioning (SF), mental health (MH), and vitality (VT) scores of the patients were calculated with SF-36 scale. Obtained health-related quality of life scores were compared with reported Turkish normal scores.[8] The relationship between the clinical characteristics of the patient group and the scale scores was examined.

The study was approved by Bakirkoy Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital, Clinical Research Ethics Committee (February 7, 2017; Decision No:626).

Statistical Analysis

Statistical Package for the Statistical Package for the Social Sciences version 22.0. (IBM SPSS Corp.; Armonk, NY, USA) package program was used for biostatistical analyses. The criteria used in the biostatistical analysis of the study were defined with mean and standard deviation values. The *t*-test was used to compare the means of normally distributed variables between the groups. The presence, direction, and strength of a relationship between the variables were calculated by Pearson's correlation analysis. The relationship between quantitative variables was evaluated with the chi-square test. The significance level was taken as $P \leq .05$ in the interpretations.

RESULTS

A total of 205 patients with epilepsy [F : M = 125 (61%) : 80 (39%)] were included in the study. The mean age was 32.32 ± 11.3 (14-69) years. Of the cases, 178 (87%) were between the ages of 18 and 44 years, 25 (12%) were between the ages of 45 and 64 years, and 2 (1%) were over the age of 65. The mean age of onset of epilepsy was 16.13 ± 10.56 (1-55) years, and the mean disease duration was 16.18 ± 9.36 (2-51) years. Etiologically, 46.3% (n = 95) of the cases were followed with the diagnosis of genetic epilepsy, 30.7% (n = 63) with idiopathic epilepsy, and 22.9% (n = 47) with structural epilepsy. There were 124 patients (60.5%) who did not describe seizures in the last 1 year (Table 1).

All of the patients' mean SF-36 scores (GH, PF, RPD, BP, RED, SF, MH, and VT) were statistically should be out significantly lower compared to the normal Turkey data published in 2006.[8] In terms of gender, PF and BP scores from physical health scales and MH and VT scores from mental health scales were significantly lower in women compared to men ($P < .05$) (Table 2).

The SF-36 scores of the patients did not differ significantly according to age range, age of onset of epilepsy, seizure type, epilepsy etiology, cranial MRI, and EEG findings ($P > .05$).

Disease duration was negatively correlated with SF-36 scores of GH ($r = -.162$), PF ($r = -.167$), RPD ($r = -.239$), RED (r = -.235), and SF ($r = -.155$) ($P < .05$). On the other hand, no significant correlation was found between BP, MH, and VT and disease duration ($P > .05$).

When the number of ASDs they were using was examined, it was noted that all the health-related quality of life scores of the patients under polytherapy were lower than the scores of those who received monotherapy ($P < .05$) (Table 3).

Table 1. Clinical and Demographic Characteristics of the Patients (n = 205)

Clinical Features	
Age (years)	32.32 ± 11.3 (14-69)
Gender (F/M)	125 (61%)/80 (39%)
Age of onset of epilepsy (years)	16.13 ± 10.56 (1-55)
Duration of epilepsy (years)	16.18 ± 9.35 (2-51)
Seizure type	
Generalized onset	145 (70. 7%)
Focal onset	10 (4.9%)
Focal onset + generalized onset	50 (24.4%)
Etiology	
Genetics	95 (46.3%)
Idiopathic	63 (30.7%)
Structural	47 (22.9%)
EEG	
Normal	26 (12.7%)
Focal epileptiform anomaly	65 (31.7%)
Generalized epileptiform anomaly	108 (52.7%)
Focal + generalized epileptiform anomaly	6 (2.9%)
Cranial MR	
Normal	158 (77%)
Pathological	47 (23%)
ASD therapy	
Monotherapy	131 (63.9%)
Polytherapy	69 (33.7%)
Drug-free	5 (2.4%)

ASD, anti-seizure drug; MR, magnetic resonance.

The physical scores of GH, PF, and BP and mental scores of SF, MH, and VT were significantly lower in the patients whose seizures continued in the last year than in those who were seizure-free for the last year ($P < .05$) (Table 4).

DISCUSSION

In this study, 205 patients diagnosed and followed-up with epilepsy evaluated their health-related quality of life with the SF-36 scale. The data obtained were interpreted, and the effects of the sociodemographic and clinical characteristics of the patients on the quality of life were

Table 2. Health-Related Quality of Life Scores of Patients and Their Change According to Gender

	All Patients (n = 205)	**Female (n = 125)**	**Male (n = 80)**
GH	60.45 ± 21.82***	58.17 ± 20.17***	64.01 ± 23.88***
PF	87.02 ± 16.63*	85.20 ± 18.73$^{\varphi,**}$	89.87 ± 12.24
RPD	73.9 ± 35.46***	72.20 ± 37.05**	76.56 ± 32.88***
BP	70.00 ± 26.77***	64.24 ± 26.59$^{\varphi\varphi\varphi,***}$	79.01 ± 24.63*
RED	62.25 ± 36.41***	62.11 ± 37.47***	62.47 ± 34.93***
SF	74.32 ± 23.84***	72.30 ± 24.72***	77.50 ± 22.18***
MH	61.66 ± 19.08***	59.31 ± 18.27$^{\varphi,***}$	65.35 ± 19.83*
VT	59.21 ± 20.96***	56.20 ± 20.40$^{\varphi,***}$	63.93 ± 21.07

GH, general health; PF, physical functioning; RPD, role-physical difficulty; RED, emotional-role difficulty; SF, social functioning; BP, bodily pain; MH, mental health; VT, vitality.

*Significantly different from Turkey's healthy control data; $^{*}P < .05$, $^{**}P < .01$, $^{***}P < .001$.

$^{\varphi}$Significantly different from men in our study; $^{\varphi}P < .05$, $^{\varphi\varphi\varphi}P < .001$.

Table 3. Number of Anti-seizure Drugs and Health-Related Quality of Life Scores

	Monotherapy (n = 131)	Polytherapy (n = 69)	*P*
GH	63.90 ± 21.65	54.46 ± 20.79	<0.01**
PF	89.65 ± 13.37	81.66 ± 20.84	<0.01**
RPD	78.81 ± 33.17	62.68 ± 38.01	<0.01**
BP	74.70 ± 25.97	61.60 ± 25.98	<0.01**
RED	70.45 ± 32.20	43.93 ± 37.69	<0.001***
SF	77.19 ± 23.07	67.93 ± 24.58	<0.01**
MH	63.96 ± 18.46	56.95 ± 19.59	<0.05*
VT	62.51 ± 20.11	53.40 ± 21.03	<0.01**

GH, general health; PF, physical functioning; RPD, role-physical difficulty; RED, emotional-role difficulty; SF, social functioning; BP, bodily pain; MH, mental health; VT, vitality.

*$P < .05$; **$P < .01$; ***$P < .001$ (there were 5 cases not using ASD).

Table 4. Seizure Frequency and Health-Related Quality of Life Scores

	No Seizure in the Last One Year (n = 124)	Seizure in the Last One Year (n = 81)	*P*
GH	63.85 ± 21.62	55.24 ± 21.22	<.01**
PF	89.39 ± 14.86	83.39 ± 18.53	<.05*
RPD	76.41 ± 34.37	70.06 ± 36.95	>.05
BP	74.41 ± 25.00	63.27 ± 28.12	<.01**
RED	65.56 ± 36.30	57.17 ± 36.22	>.05
SF	78.22 ± 22.53	68.36 ± 24.69	<.01**
MH	64.54 ± 19.24	57.25 ± 18.07	<.01**
VT	62.17 ± 21.55	54.69 ± 19.27	<.05*

GH, general health; PF, physical functioning; RPD, role-physical difficulty; RED, emotional-role difficulty; SF, social functioning; BP, bodily pain; MH, mental health; VT, vitality.

*$P < .05$; **$P < .01$; ***$P < .001$.

investigated. The majority of the patients were between the ages of 18 and 44 years (87%), had generalized onset seizures (70.7%), and had normal neuroimagings (76.6%). More than half of the cases were under monotherapy (63.9%) and were seizure-free for 1 year (61%). Despite these clinical features, all calculated SF-36 physical and mental scores of 205 cases were significantly lower than normal data reported in a large society-based study conducted in our country.[8] This decrease in all health-related quality of life scores of patients with epilepsy was consistent with the results of other studies reported in the literature.[3,4,9-13] The fact that the quality of life of epilepsy patients is low compared to the general population and that they report this situation, albeit indirectly, can be interpreted as an indicator of the psychosocial difficulties, sensitivities, and awareness of individuals in the society. From this point of view, it is necessary to support individuals with epilepsy. In this sense, it is important to determine the modifiable factors that affect the quality of life of epilepsy patients.

In our study, PF, BP, VT, and all mental health scores of female patients were found to be lower than those of male patients. In other words, female patients described their quality of life as worse both physically and mentally compared to male patients. The findings were found to be consistent with the results of other studies conducted in our country.[3] However, there are also studies in the literature comparing SF-36 scores of epileptic female and male groups and reporting lower quality of life scores of male epileptic patients.[14] In our study, all health-related quality of life scores of female patients with epilepsy were found to be lower, as expected, compared to healthy women. On the other hand, it was noted that the PF and vitality/energy scores of male epilepsy patients were similar to those of healthy men, and all other scores were lower than their healthy counterparts. It was thought that all these findings in terms of gender could be explained by social differences and the variability of the roles of men and women in the relevant society.

Interestingly, in our study, age of onset of epilepsy, seizure type, epilepsy etiology, cranial MRI, and EEG findings were not found to be associated with SF-36 scores. Petruzzi et al[12] found the quality of life scores of patients having symptomatic epilepsy with structural lesions to be lower than those with epilepsy of unknown origin, and they explained this difference with the fact that the perception of quality of life might change due to an underlying comorbid disease.[12] Baker et al[15] showed that SF-36 scores of epilepsy patients with mixed type seizures were lower.[15]

In our study, disease duration was found to be negatively correlated with GH, PF, RPD, RED, and SF scores. Similarly, Piperou et al[16] reported the negative effects of disease duration on quality of life.[16]

As expected, it was observed that the decrease in the frequency of epileptic seizures, the time of which could not be predicted, positively affected GH, PF, BP, SF, MH, and VT scores. In a European study published in 1997, which included data on more than 5000 cases, the negative effects of seizure frequency on stigma and quality of life were reported.[15]

Another important result that should be emphasized in our study is that all quality of life scores were significantly lower in patients under polytherapy. The negative impact of polytherapy on the quality of life in epilepsy patients brought to mind the possible effect of increased drug side effects and the difficulty of using multiple drugs. The effect of polytherapy on quality of life is controversial in the literature.[16-19]

In this study, it has been shown that the health-related quality of life of patients with epilepsy is lower than that of healthy individuals in our country. It has been determined that gender, seizure control, disease duration, and number of ASDs are effective factors on quality of life. Therefore, it should be kept in mind that health-related quality of life may be lower in female patients, in patients with long disease duration, in those having frequent seizures, and in epilepsy patients under polytherapy.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Bakirkoy Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital, Clinical Research Ethics Committee (Date: February 07, 2017, Decision No:626).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - S.A.B., D.A.; Design - S.A.B., S.Ş., D.A. Supervision - D.A., B.T., A.C.D., Data Collection and/or Processing - S.A.B, S.Ş., Z.E.B., M.E., B.T., H.S., D.A.

Declaration of Interests: The authors have no conflicts of interest to declare.

Funding: The authors declared that this study has received no financial support.

REFERENCES

1. Sander JWAS. Some aspects of prognosis in the epilepsies: a review. *Epilepsia*. 1993;34(6):1007-1016. [CrossRef]
2. Fisher RS, Acevedo C, Arzimanoglou A, et al. ILAE official report: a practical clinical definition of epilepsy. *Epilepsia*. 2014;55(4):475-482. [CrossRef]
3. Mutluay FK, Gündüz A, Tekeoglu A, Oguz S, Yeni SN. Health related quality of life in patients with epilepsy in Turkey. *J Phys Ther Sci*. 2016;28(1):240-245. [CrossRef]
4. Aydemir N, Ozkara C, Canbeyli R, Tekcan A. Changes in quality of life and self-perspective related to surgery in patients with temporal lobe epilepsy. *Epilepsy Behav*. 2004;5(5):735-742. [CrossRef]
5. Aydemir N, Ozkara C, Canbeyli R, Tekcan A. Changes in QOL and self-perspective related to surgery in patients with temporal lobe epilepsy. *Epilepsy Behav*. 2004;5(5):735-742. [CrossRef]
6. Ware JE, et al. *SF-36 Physical and Mental Health Summary Scales: A User's Manual*. Boston: The Health Institute, New England Medical Center; 1994.
7. Ware JE Jr. SF-36 health survey update. *Spine*. 2000;25(24):3130-3139. [CrossRef]
8. Demiral Y, Ergor G, Unal B, et al. Normative data and discriminative properties of short form 36 (SF-36) in Turkish urban population. *BMC Public Health*. 2006;6:247. [CrossRef]
9. Demirci K, Demirci S, Taşkıran E, Kutluhan S. The effects of temperament and character traits on perceived social support and quality of life in patients with epilepsy. *Epilepsy Behav*. 2017;74:22-26. [CrossRef]
10. Izci F, Fındıklı E, Camkurt MA, Tuncel D, Şahin M. Impact of aggression, depression, and anxiety levels on quality of life in epilepsy patients. *Neuropsychiatr Dis Treat*. 2016;12:2595-2603. [CrossRef]
11. Akosile CO, Anomneze JU, Okoye EC, Adegoke BOA, Uwakwe R, Okeke E. Quality of life, fatigue and seizure severity in people living with epilepsy in a selected Nigerian population. *Seizure*. 2021;84:1-5. [CrossRef]
12. Petruzzi A, Rigamonti A, Finocchiaro CY, et al. Psychological features and quality of life in 50 adult patients with epilepsy and their caregivers from the Lecco epilepsy center, Italy. *Epilepsy Behav*. 2017;71(A):13-16. [CrossRef]
13. Taft C, Magnusson ES, Ekstedt G, Malmgren K. Health related quality of life, mood, and patient satisfaction after epilepsy surgery in Sweden – a prospective controlled observational study. *Epilepsia*. 2014;55(6):878-885. [CrossRef]
14. Gholami A, Salarilak S, Lotfabadi P, et al. Quality of life in epileptic patients compared with healthy people. *Med J Islam Repub Iran*. 2016;14:30-388.
15. Baker GA, Jacoby A, Buck D, Stalgis C, Monnet D. Quality of life of people with epilepsy: a European study. *Epilepsia*. 1997;38(3):353-362. [CrossRef]
16. Piperidou C, Karlovasitou A, Triantafyllou N, et al. Association of demographic, clinical and treatment variables with quality of life of patients with epilepsy in Greece. *Qual Life Res*. 2008;17(7):987-996. [CrossRef]
17. Pirio Richardson S, Farias ST, Lima AR, III, Alsaadi TM. Improvement in seizure control and quality of life in medically refractory epilepsy patients converted from polypharmacy to monotherapy. *Epilepsy Behav*. 2004;5(3):343-347. [CrossRef]
18. Piazzini A, Ramaglia G, Turner K, et al. Coping strategies in epilepsy: 50 drug-resistant and 50 seizure-free patients. *Seizure*. 2007;16(3):211-217. [CrossRef]
19. Meldolesi GN, Picardi A, Quarato PP, et al. Factors associated with generic and disease-specific quality of life in temporal lobe epilepsy. *Epilepsy Res*. 2006;69(2):135-146. [CrossRef]