

## Quality of life in epileptic patients compared with healthy people

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### Abstract

**Background:** Epilepsy is a common chronic neurological disorder that has a great impact on people's lives. Patients with epilepsy are at increased risk for poor Quality of Life (QoL). The objective of this study was to evaluate the QoL of epileptic patients in comparison to healthy persons.

**Methods:** This cross-sectional study was conducted on 52 epileptic patients from Golbu region in Neyshabur (a city in northeast of Iran). Using Short Form Health Survey (SF-36) scale, the data were collected between April and Jun 2012. Every patient were compared with two healthy persons. Epileptic and healthy persons were similar for age, sex and local residence. Pearson's correlation coefficient and t-independent test applied for data analysis through SPSS v. 16 software.

**Results:** Of 52 epileptic patients, 24 were female (46.2%) and 28 were male (53.8%). The mean±SD age of epileptic patients was 40.92±20.33yr (Rang: 15-86yr). The total mean score of SF-36 in patient group was 55.88 and in healthy group 68.52 and this difference was statistically significant ( $p<0.001$ ). Among the different subscales of SF-36 in epileptic patients, the highest and the lowest mean scores were found for social functioning and general health subscales, respectively. The mean scores in patient group in comparison to healthy group were lower in all subscales of SF-36 and these differences were statistically significant in all domains (except role limitations due to physical problems domain and role limitations due to emotional problems domain).

**Conclusion:** The study showed that epilepsy disease has an important role in QoL of patients, thus some interventional programs are necessary to improve their QOL.

**Keywords:** Epilepsy, Quality of life, SF-36, Neyshabur.

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### Introduction

Epilepsy is a common chronic neurological disorder that has a great impact on people's lives (1-4). In epileptic patients the seizures usually produce brief periods of disruption, which include phenomena such as bodily distortion, loss of consciousness,

injuries etc. The seizure recurrence is unpredictable and it is a constant threat to the patient with epilepsy and their family (5). Patients with epilepsy may experience stigmatization, lack of understanding, and social isolation (6-9), thus, they are at increased risk for poor QOL. The WHO has

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defined QoL as “an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”(10). In previous studies, various instruments have been used to measure QOL in different groups (e.g., patients, workers, population etc). One of these instruments is SF-36 questionnaire; a generic instrument translated and validated in Iran by Montazeri (11). Some studies evaluated QoL in patients with epilepsy and found a relatively lower QoL in them (12-17). Information on the QoL of epilepsy patients is important for health policy makers and physicians in order to identify and implement interventional programs for improving the QoL of them. Therefore, this study was performed to determine the QoL of epilepsy patients and compare it to that of healthy persons.

## Methods

### Data

This cross-sectional study was conducted on all epileptic patients (n=52) from Golbu region in Neyshabur (a city in northeast of Iran). The data were collected between April and Jun 2012 from Golbu region in Neyshabur. Every patient compared with two healthy persons that they selected from the neighborhood. Epileptic and healthy persons were matched in age ( $\pm 5$  years old), sex and local residence. All participating subjects provided informed consent after being acquainted with the purpose of study. Data collection was formed via face-to-face interview with patient and healthy persons. Inclusion criteria for epileptic patients included: (a) having epilepsy, (b) 15 years of age or older, (c) diagnosis of epilepsy for a minimum of one year, (d) no history of seizure within the last 24 hours, (e) no chronic disease or disability other than epilepsy and (f) residence in Golbu region of Neyshabur, and (g) agreement for participation in the study. Inclusion criteria for healthy persons included: (a) not having any chronic disease or disability (b) residence in Golbu region of Neyshabur, and

(c) agreement for participate in study.

### Instrument

The Persian version of the SF-36 questionnaire was used in this study that was validated in Iran by Montazeri (11). This questionnaire contains 36 items divided into 8 subscales: Physical Functioning (PF), Role limitations due to physical Problems (RP), Bodily Pain (BP), Vitality (VT), General Health (GH), Social Functioning (SF), Role limitations due to Problems (RE) and Mental Health (MH). The Mental aspect of QoL correlates most highly with the subscales including MH, RE, and SF, which associated with subscale of VT, contribute most to the scoring of Mental Component Summary (MCS) measure (18). Three subscales (PF, RP, and BP) correlate most highly with the physical aspect of QoL and associated with subscale of GH, contribute most to the scoring of Physical Component Summary (PCS) measure (18). Raw domain scores for the SF-36 were transformed to a 0–100 according to the recommendation by Ware JE (19). In this study a total QoL that represents the average of the total of the eight subscales was calculated and then it was divided into four levels: a poor QoL was indicated by a score less than 40; a moderate QoL was indicated by a score of 40 to 60; a good QoL was indicated by a score of 61 to 80, and an excellent QoL was indicated by a score of more than 80 (20).

### Statistical Analysis

In this study, the information collected was analyzed through SPSS v.16 software. Descriptive analyses performed including frequencies, percentages, ranges, means, and standard deviations (SD). Pearson's correlation coefficient was used to determine the level of correlation between eight subscales of SF-36. The t-independent test was performed to determine mean of QoL in two groups (patients and healthy persons). The level of significance was set at  $p < 0.05$  for all analyses.

**Results**

A total of 52 persons affected by epilepsy were studied in this study. The mean±SD age of epileptic patients was 40.92±20.33yr (rang: 15-86yr). About 46% (n=24) of patients were female, with a mean±SD age of 35.83±16.43yr, and 54% (n=28) were male, with a mean±SD age of 45.29±22.54 yr. Other characteristics of study population are shown in Table1.As Table 2 shows, there are statistically significant correla-

tions between all subscales of SF-36 in patient group (p<0.05) (except 3 correlations between subscales).The mean scores of the PCS, MCS, eight subscales and total of SF-36 were lower in epileptic patients than healthy persons and these differences were statistically significant (except in RP and RE subscales) (p<0.05) (Table 3). As displayed in Table 3, the total mean score of SF-36 in epileptic and healthy persons were55.88 and 68.52.Among the different

Table 1. Characteristics of epileptic and healthy patients

| Characteristics       | Epileptic<br>n (%) | Healthy<br>n (%) |
|-----------------------|--------------------|------------------|
| Sex                   |                    |                  |
| Male                  | 24 (46.2)          | 48 (46.2)        |
| Female                | 28 (53.8)          | 56 (53.8)        |
| Marital Status        |                    |                  |
| Single/Divorced       | 17 (32.7)          | 21 (20.2)        |
| Married               | 35 (67.3)          | 83 (79.8)        |
| Education Level       |                    |                  |
| Illiterate            | 22 (42.3)          | 33 (31.7)        |
| ≥ Elementary          | 30 (57.7)          | 71 (68.3)        |
| Mean ± SD Age (years) | 40.92 ± 20.33      | 40.34±20.25      |

Table 2. Correlation coefficients for eight subscales of SF36

|    |     | PF | RP     | RE     | VT     | MH     | SF     | BP     | GH     |
|----|-----|----|--------|--------|--------|--------|--------|--------|--------|
| PF | CC  | 1  | 0.801  | 0.464  | 0.144  | 0.068  | 0.286  | 0.599  | 0.338  |
|    | Sig |    | <0.001 | 0.001  | 0.308  | 0.634  | 0.04   | <0.001 | 0.014  |
| RP | CC  |    | 1      | 0.573  | 0.321  | 0.262  | 0.356  | 0.546  | 0.461  |
|    | Sig |    |        | <0.001 | 0.02   | 0.06   | 0.009  | <0.001 | 0.001  |
| RE | CC  |    |        | 1      | 0.477  | 0.512  | 0.523  | 0.575  | 0.616  |
|    | Sig |    |        |        | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| VT | CC  |    |        |        | 1      | 0.838  | 0.531  | 0.673  | 0.644  |
|    | Sig |    |        |        |        | <0.001 | <0.001 | <0.001 | <0.001 |
| MH | CC  |    |        |        |        | 1      | 0.629  | 0.508  | 0.648  |
|    | Sig |    |        |        |        |        | <0.001 | <0.001 | <0.001 |
| SF | CC  |    |        |        |        |        | 1      | 0.477  | 0.551  |
|    | Sig |    |        |        |        |        |        | <0.001 | <0.001 |
| BP | CC  |    |        |        |        |        |        | 1      | 0.565  |
|    | Sig |    |        |        |        |        |        |        | <0.001 |
| GH | CC  |    |        |        |        |        |        |        | 1      |
|    | Sig |    |        |        |        |        |        |        |        |

Table 3. Comparison SF-36 mean scores in epileptic and healthy persons

| Subscales | Epileptic   | Healthy     | p       |
|-----------|-------------|-------------|---------|
|           | Mean±SD     | Mean±SD     |         |
| PF        | 58.8± 34.16 | 74.8± 26.48 | 0.007   |
| RP        | 46.6± 42.37 | 59.4± 38.3  | 0.081   |
| RE        | 46.8± 42.40 | 56.7± 41.52 | 0.164   |
| VT        | 59.3± 21.14 | 68.9± 19.13 | 0.005   |
| MH        | 59.2± 20.82 | 68.8± 17.31 | 0.003   |
| SF        | 68.5± 22.07 | 77.0± 20.76 | 0.019   |
| BP        | 62.8± 25.79 | 77.5± 19.76 | < 0.001 |
| GH        | 43.9± 20.71 | 65.9± 22.24 | < 0.001 |
| PCS       | 56.4± 30.17 | 70.3± 23.96 | 0.005   |
| MCS       | 58.2± 23.99 | 67.5± 22.06 | 0.017   |
| Total     | 55.9± 21.60 | 68.5± 19.33 | <0.001  |

PCS = Physical Component Summary; MCS = Mental Component Summary.

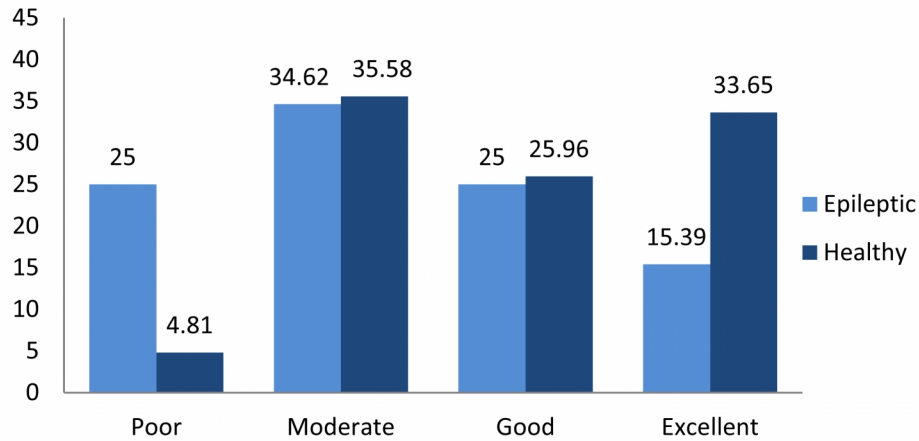


Fig. 1. Comparison of mean scores between epileptic patients and healthy persons according to QoL levels

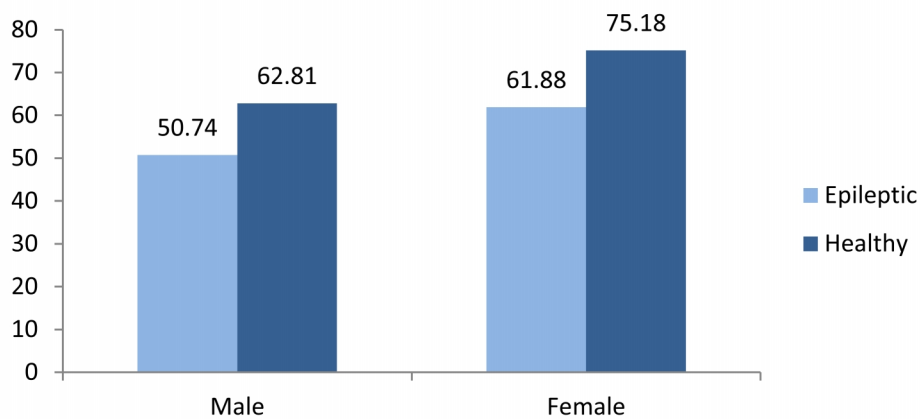


Fig. 2. Comparison of mean scores QoL between epileptic patients and healthy persons according to sex

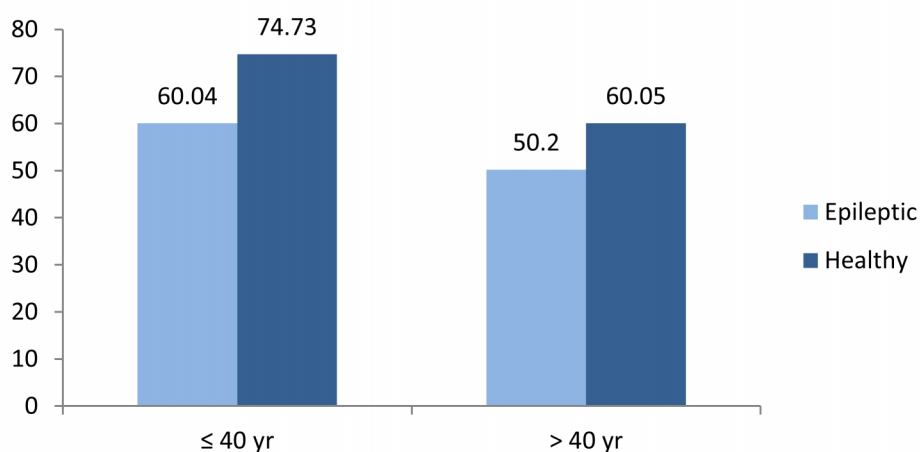


Fig. 3. Comparison of mean scores of QoL between epileptic patients and healthy persons according to age group

subscales of SF-36 in epileptic patients, the highest and the lowest mean scores were found for SF subscale (Mean=68.51) and GH subscale (Mean=43.94), respectively (Table 3). As presents in Fig. 1, more than

50% of epileptic patients had a moderate to poor QoL but more than 50% of healthy persons had good to excellent QoL and these differences were statistically significant ( $p=0.001$ ). As Fig. 2 shows, the mean

scores in epileptic patients were lower than healthy persons in both sexes. Also it is shown in Fig. 2 that the mean scores in females were higher than males. Fig.3 shows that the mean scores in younger persons ( $\leq 40$ yr) were higher than older ones ( $>40$ yr).

### Discussion

The purpose of this study was to evaluate the QoL of epileptic patients compared with healthy persons using the Persian version of the Short Form Health Survey scale. QoL can identify groups with mental or physical health problems and provide a guide to intervention and follow up evaluation (21). The results of this study highlight the impact of epilepsy on the QoL of epileptic patients in Neyshabur. When QoL of epileptic patients compared with the healthy persons, patients with epilepsy reported a significantly lower QoL in total and across all subscales (except RP and RE subscales). These results are consistent with many previous studies that were done in different countries (12-17). As the findings of this study showed, the total mean score of SF-36 in epileptic patients was 55.88 that indicate a relatively moderate to low QoL in them. But the total mean score of SF-36 in healthy persons was 68.52 that indicates a relatively moderate to high QoL in them. This is similar to Shakir study that compared QoL of people with epilepsy to healthy persons (12) and also is similar to the findings in a 2004 Tunisian study that compared people with epilepsy to a general reference population (13). Similar results observed in a Malaysian pilot study (22). Kinyanjui observed that the mean QoL among people living with epilepsy (49.90%) was significantly lower than that of the normal controls (77.60%) (23). Among the different subscales of SF-36, the lowest mean score was found for GH subscale (43.94%), implying that more than 56% of surveyed epileptic patients before filled questionnaire, had problems with their healthy status. Moreover, the highest mean score was shown for SF subscale

(68.51%) indicating lower than 32% of social activities of epileptic patients, limited a lot or limited a little by emotional problems or healthy status of them. In Shakir study in Basrah (Iraq) the lowest and the highest mean scores were found for RP and PF subscales, respectively (12). In this study, it was observed that the mean score of PCS is lower than the mean score of MCS, implying that participants in this study had higher problem in physical component in comparison with mental component. This is similar to Aghamolaei study that was done in order to investigate the determinants of Health-Related QoL (HRQoL) of general population living in Bandar Abbas (24). But, in Daher study that was done to assess the HRQoL of Iraqis living in Malaysia observed that the mean score of PCS was higher than the MCS mean score (21). In this study it was observed that the mean scores of QoL in epileptic patients were lower than healthy persons in both sexes. Also it was observed that the mean scores in females were higher than males in epileptic patients. These findings confirm the results of the Shakir and Darabi' studies (12-25). However, the results of several studies have showed that females with epilepsy experience worse QoL than males (26-28). These differences in this study and other mentioned studies may be attributable to cross-cultural differences, such as different functional roles and different social support for men and women in different countries. In this study, it was observed that the mean scores of QoL in younger persons were higher than older persons. Similar results observed in Shakir, Darabi and Shetty' studies (12,25,28). These QoL differences may be attributable to lower energy level and early fatigue in elderly people.

There are a number of limitations to this study. First, this study originated from epileptic patients from Golbu region in Neyshabur and these patients may be different from an unselected population with epilepsy in different regions of Neyshabur. This problem could be controlled by performing population-based studies in the future. Se-



cond, the surveyed population in this study was relatively small.

### Conclusion

From the findings of this study, it appears that surveyed epileptic patients have lower QoL compared with the healthy persons, so, it seems that epilepsy disease has an important role in QoL of patients. The findings also confirm that the female patients and also younger patients have better QoL. From the results of this study it seems that there is need to implement interventional programs in order to help epileptic patients to improve their QoL.

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### Conflict of interest

The authors have no conflicts of interest.

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