Research Article

Level of Acceptance of Illness and Its Association with Quality of Life among Patients with Epilepsy in North Shewa, Ethiopia

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1. Background

Epilepsy is a chronic noncommunicable disease of the brain which affects around 50 million people worldwide [1], and about 80% of epileptic patients are living in resource-poor countries [2]. A further 500 million people (including families and caregivers) are thought to be indirectly affected by the disease [3]. In developed nations, epilepsy occurs with an annual incidence ranging from 20 to 70 cases per 100,000, while the incidence of epilepsy in developing countries may be as high as 190 per 100,000 people [4]. However, its burden in sub-Saharan African countries worsens because of low medication adherence and belief [8], increased morbidity and mortality [5], and the stigmatization associated with the disease [6, 7].

The incidence and prevalence of epilepsy in Ethiopia were reported to be 64/100,000/year and 5.2/1000, respectively [8], but it can reach a prevalence of 29.5/1000 in Zay...
society of Ethiopia [9]. The morbidity and mortality associated with the disease in low-income countries increase because of the shortage of trained health workers, insufficient antiepileptic drug supplies, and limited diagnostic equipment. Furthermore, many patients with epilepsy in low-income countries do not seek medical treatment due to cultural issues and economic reasons [10, 11].

Epilepsy imposes about 0.5% of the global burden of disease causing substantial socioeconomic problem on the patients [1]. However, the personal burden of illness cannot be described fully by measures of diseases only; it needs measurement of health-related quality of life which goes beyond direct manifestations of illness to study patients’ personal morbidity [12]. And studies shows a significant correlation between acceptance of illness and quality of life of patients [13–15].

Acceptance of chronic illness refers to psychological adjustment for the chronic illness [16]. The level of chronic illness acceptance is an indicator of functioning and predictor of quality of life; and the greater the acceptance of disease, the less mental discomfort and less severe negative emotions [17]. But in patients with epilepsy, stigma associated with illness and psychosocial factors is causing poor physical as well as psychological well-being [18] with few interventions being implemented to change illness perceptions [19]. Therefore, this study is aimed at assessing the level of acceptance of illness of patients with epilepsy and their associated quality of life in North-East Ethiopia.

2. Methods

2.1. Study Period and Area. The study was conducted at the psychiatry unit of the Debre Berhan Referral Hospital, North-East Ethiopia, from September to June 2021.

2.2. Study Design. Hospital-based cross-sectional study was conducted.

2.3. Source Population. All patients diagnosed with epilepsy at the Debre Berhan Referral Hospital are the source population.

2.4. Study Population. All epileptic patients aged more than 18 years and who had been living with epilepsy for at least one year are the study population.

2.5. Eligibility Criteria. Age greater or equal to 18 years old epileptic patients who lived with epilepsy for at least one year and gave informed consent were included in the study. Patients less than 18 years old, patients diagnosed with epilepsy earlier (before a year), and those who did not gave informed consent were excluded from the study.

2.6. Sample Size Determination. There is no research done about the magnitude of epilepsy in North Shewa zone. Therefore, $p = 3\%$ was taken from the study done on Zay society, Ethiopia, to determine the representative sample size. Using single population proportion formula,

$$P = 0.03 \quad Q = 1 - p = 0.97$$

$$Z = 2.58$$

$$n = \frac{(Z_{0.025})^2 P(1 - P)}{d^2}$$

$$= \frac{(2.58)^2(0.03 \times 0.97)}{(0.05)^2}$$

$$= 78$$ adding nonresponse rate = 98.

2.7. Data Collection Procedure. The data was collected by trained psychiatric nurse at the Debre Berhan Referral Hospital using authors owned questionnaire, standard acceptance of illness scale (AIS) by B.J. Felton et al., and Quality of Life in Epilepsy Inventory 31. The AIS enables researchers to assess patients’ acceptance level of any disease, and its statements are presented in accordance to the Likert technique by which respondents’ agreement or disagreement (set of attitude statements) can be expressed with the use of a five-point scale (1-strongly agree, 2-agree, 3-neutral, 4-disagree, and 5-strongly disagree). This five-point Likert scale is an interval scale, and when the mean response is from 1 to 1.80, it means strongly agree; from 1.81 to 2.60, it means agree; from 2.61 to 3.40, it means neutral; from 3.41 to 4.20, it means disagree; and from 4.21 to 5.00, strongly disagree.

The sum total score between 8 and 40 points is a measure of illness acceptance. The higher the score, the better the illness adaptation and the lower mental discomfort of the patient. Scores below 20 points are considered low and indicate no or poor acceptance and adaptation to the disease as well as significant emotional problem related to it. Scores between 20 and 30 points indicate moderate level of acceptance of the illness, and scores more than 30 points indicate high or full level of acceptance of the disease.

Additionally, quality of life of the patients was assessed using Quality Of Life In Epilepsy Inventory 31 (QOLIE-31) which contains seven multi-item scales that tap the following seven health concepts: emotional well-being (5 items), social functioning (5 items), energy/fatigue (4 items), cognitive functioning (6 items), seizure worry (5 items), medication effect (3 items), and overall quality of life (2 items). Clinical data including seizure control, seizure frequency, length of antiepileptic drug treatment, and antiepileptic drug used for treatment were assessed by face-to-face interview using authors’ questionnaire and then cross-checked with patients’ medical record.

2.8. Ethical Approval and Consent to Participate. The study was conducted in accordance with the guidelines laid down in the Declaration of Helsinki, and all the procedures were approved by the Ethical Committee of the College of Medicine, Debre Berhan University, and Debre Berhan Referral Hospital Ethical Committee. Written informed consent was obtained from all subjects before participation.

2.9. Statistical Analysis. Data were coded, checked, and entered into Epi-data statistical software version 3.1 and then exported to SPSS software version 23 for analysis. Descriptive statistics were presented as frequency and
percentage. Pearson’s correlation was used to compute the association between dependent and independent variables. *P* value < 0.05 at 95% confidence level was considered to be statistically significant in all the analysis.

### 3. Results

#### 3.1. Sociodemographic and Clinical Characteristics

The study participants’ age varied between 18 and 67 years with the mean age of 28.9 years. The majority of the study participants were male (63.5%), single (50%), and educated up to primary school (36.5%). Phenobarbital was the most used (73.9%) antiepileptic drug, and in about 68.7% (n = 66) of the patients, seizure was controlled (Table 1).

#### 3.2. Acceptance of Illness Scale

Seventy-two point nine percent (n = 70) of the patients had medium acceptance of illness (scored 20-30), while 17.7% (n = 17) had low illness acceptance level (scored 8-19). But only 9.4% (n = 9) had high acceptance of illness (scored 31-40). The mean of overall acceptance of illness among epileptic patients was 21.04 with standard deviation of 7.21, which indicates medium level of acceptance of a disease among epileptic patients in the study area (Table 2).

#### 3.3. Quality of Life of Epileptic Patients

The overall score of QOLIE-31 was calculated after multiplying subscale total scores by their respective weight. Accordingly, the overall score of QOLIE-31 among epileptic patients in the study area was 79.1 ± 25.4, and the highest mean score was for cognitive (83.5 ± 27.1), while the lowest mean score was that of medication effect (72.7 ± 28.7). Nearly half of the patients (47 (48.96%)) had an overall quality of life score greater or equal to the mean score level, while the remaining 49 (51.04%) had overall quality of life score below the mean (Table 3).

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**Table 1:** The sociodemographic characteristics of patients with epilepsy at the Debre Berhan Referral Hospital, 2020/2021.

<table>
<thead>
<tr>
<th>Sociodemographic variable (N = 96)</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>35</td>
<td>36.4</td>
</tr>
<tr>
<td>26-34</td>
<td>30</td>
<td>31.3</td>
</tr>
<tr>
<td>35-44</td>
<td>16</td>
<td>16.7</td>
</tr>
<tr>
<td>≥45</td>
<td>15</td>
<td>15.6</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>61</td>
<td>63.5</td>
</tr>
<tr>
<td>Female</td>
<td>35</td>
<td>36.5</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>Married</td>
<td>44</td>
<td>45.8</td>
</tr>
<tr>
<td>Divorced</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Educational status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unable to read and write</td>
<td>26</td>
<td>27.1</td>
</tr>
<tr>
<td>Able to read and write</td>
<td>10</td>
<td>10.4</td>
</tr>
<tr>
<td>Primary school</td>
<td>35</td>
<td>36.5</td>
</tr>
<tr>
<td>Secondary school</td>
<td>15</td>
<td>15.6</td>
</tr>
<tr>
<td>Diploma and above</td>
<td>10</td>
<td>10.4</td>
</tr>
<tr>
<td><strong>Seizure control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlled seizure</td>
<td>66</td>
<td>68.7</td>
</tr>
<tr>
<td>Uncontrolled seizure</td>
<td>30</td>
<td>31.3</td>
</tr>
<tr>
<td><strong>Seizure frequency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>Weekly</td>
<td>9</td>
<td>9.4</td>
</tr>
<tr>
<td>Monthly</td>
<td>18</td>
<td>18.8</td>
</tr>
<tr>
<td>Less than once a month</td>
<td>66</td>
<td>68.7</td>
</tr>
<tr>
<td><strong>Length of AED treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 years</td>
<td>51</td>
<td>53.1</td>
</tr>
<tr>
<td>6-10 years</td>
<td>25</td>
<td>26.1</td>
</tr>
<tr>
<td>11-15 years</td>
<td>7</td>
<td>7.3</td>
</tr>
<tr>
<td>16-20 years</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>≥21 years</td>
<td>8</td>
<td>8.3</td>
</tr>
<tr>
<td><strong>AEDs used for treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>71</td>
<td>73.9</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>12</td>
<td>12.5</td>
</tr>
<tr>
<td>Sodium valproate</td>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2.1</td>
</tr>
</tbody>
</table>

AEDs: antiepileptic drugs.

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**Table 2:** The level of acceptance of illness among patients with epilepsy at the Debre Berhan Referral Hospital, 2020/2021.

<table>
<thead>
<tr>
<th>Level of illness acceptance</th>
<th>Score</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low acceptance</td>
<td>8-19</td>
<td>17</td>
<td>17.7</td>
</tr>
<tr>
<td>Medium acceptance</td>
<td>20-30</td>
<td>70</td>
<td>72.9</td>
</tr>
<tr>
<td>High acceptance</td>
<td>&gt;30</td>
<td>9</td>
<td>9.4</td>
</tr>
</tbody>
</table>

**Table 3:** QOLIE-31 score of patients with epilepsy at the Debre Berhan Referral Hospital, 2020/2021.

<table>
<thead>
<tr>
<th>QOLIE-31 subscales</th>
<th>Final score</th>
<th>Weight</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seizure worry</td>
<td>80.65377</td>
<td>.8</td>
<td>6.45</td>
</tr>
<tr>
<td>Overall quality of life</td>
<td>77.5</td>
<td>.14</td>
<td>10.85</td>
</tr>
<tr>
<td>Emotional well-being</td>
<td>77.7904</td>
<td>.15</td>
<td>11.67</td>
</tr>
<tr>
<td>Energy/fatigue</td>
<td>78.438</td>
<td>.12</td>
<td>9.41</td>
</tr>
<tr>
<td>Cognitive</td>
<td>83.4769</td>
<td>.27</td>
<td>22.54</td>
</tr>
<tr>
<td>Medication effect</td>
<td>72.775</td>
<td>.03</td>
<td>2.18</td>
</tr>
<tr>
<td>Social functioning</td>
<td>76.3741</td>
<td>.21</td>
<td>16.04</td>
</tr>
</tbody>
</table>

QOLIE-31 score: \( 6.45 + 10.85 + 11.67 + 9.41 + 22.54 + 2.18 + 16.04 = 79.14 \pm 25.46 \)
correlation coe
no multicollinearity was observed, or no varia
ticollinearity between the quality of life subscale items, and
factor (VIF < 10)
ity e
p
p
<0

The correlation matrix was assessed for the multi
collinearity between the quality of life subscale items, and
no multicollinearity was observed, or no variables shows a
correlation coefficient of >0.70. Additionally, for all vari
tables, the tolerance value shows >0.1 and variance inflation
factor (VIF < 10), which confirms absence of multicollinear
ity effect between variables (Table 4).

4. Discussion

The finding of this study shows that patients in the study
area had medium level of acceptance of illness. The mean
value of the overall acceptance of illness in this study is in
line with the study done in Poland [20]. However, small per
centage of the study participants in this study area had higher acceptance of illness compared to the aforementioned
study. This might be due to increased morbidity, mortality,
and the stigmatization associated with the disease in low
economic country [8, 21].

Although there are no sufficient studies about acceptance
of illness scale of epileptic patients for comparison, low
acceptance of illness was reported by studies on chronic dis
ease conditions like cancer [22], chronic respiratory dis
eases [23, 24], and peripheral diabetic neuropathy [25]. Medium
acceptance of illness was reported with lung cancer [26],
type II diabetes mellitus [27], colorectal cancer [28], and
breast cancer [29]. There are also studies which reported
higher acceptance of illness among renal transplantation
patients [30] and pregnant women with hyperglycemia [31]. Some studies also indicated a strong relationship
between illness acceptance and quality of life [32], and the
extent the patients accepts their chronic diseases has shown to
impact their quality of life [33].

Compared with the study done using QOLIE-31 tool, the
mean quality of life of epileptic patients in this study area is
similar with a study done in Mekelle [34]. Highest mean
value was reported for medication effect in the study done
in Mekelle, while medication effect had the lowest mean
score in this study. The discrepancy might be due to varia
tion in the selection of drugs for treatment, which in the case
of this study was conventional antiepileptic drugs (pheno
barbital for more than 70% of the patients) resulting in
higher adverse effect and low quality of life score [35].

The mean total QOLIE 31 score in this study was lower
than study done in Wollo [36] and higher than the study
done at Jimma [37]. Additionally, about half of the patients
had an overall quality of life score greater or equal to the
mean score level, while the remaining half had overall qual
ity of life score below the mean. This is also consistent with
studies from Wollo, Jimma, Gondar [38], and Addis Ababa
[39]. This might be due to socioeconomic and demographic
similarity between the study areas.

It has been shown that the level of acceptance of illness
had significant association with health-related quality of life
in different studies [40]. Similarly, the finding of this study
shows a significant correlation between level of acceptance
of illness and quality of life in epileptic patients. Accord
ingly, cognitive domain demonstrated the highest correla
tion followed by overall quality of life, seizure worry, ener
y/fatigue, and emotional well-being. This justifies level
of acceptance of illness to be an important element in the
quality of life of patients and a self-rated health of patients
[40, 41]. Therefore, to add an important element in the
holistic medical or nonmedical care, educating epileptic
patients about their chronic disease might be essential to
increase patients’ level of acceptance of illness and thereby
increase their quality of life [42, 43].

5. Conclusion

Patients with epilepsy in the study area had medium accep
tance of illness, and nearly half of them had mean and more
than the mean quality of life. The patients’ acceptance of ill
ess was significantly associated with overall quality of life,
seizure worry, energy/fatigue, emotional well-being, and
cognitive domain of the patients.

Data Availability

The dataset used and analyzed during this study are avail
able from the corresponding author on reasonable request.

Table 4: Partial correlation (Pearson’s r) among the means of QOLIE-31 subscales and acceptance of illness, 2020/2021.

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acceptance of illness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Seizure worry</td>
<td>.433*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Overall quality of life</td>
<td>.489*</td>
<td>.393*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Emotional well-being</td>
<td>.278*</td>
<td>.147</td>
<td>.096</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Energy/fatigue</td>
<td>.342*</td>
<td>.247*</td>
<td>.028</td>
<td>.665*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Cognitive domain</td>
<td>.498*</td>
<td>.408*</td>
<td>.380*</td>
<td>.337*</td>
<td>.246*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Medication effect</td>
<td>.112</td>
<td>.265*</td>
<td>.119</td>
<td>-.114</td>
<td>-.204*</td>
<td>-.094</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Social functioning</td>
<td>-.086</td>
<td>.051</td>
<td>.067</td>
<td>.176*</td>
<td>.038</td>
<td>.120</td>
<td>.138</td>
<td></td>
</tr>
</tbody>
</table>

Significant at *p < 0.05 and **p < 0.001; 1-8 in the column represent each variables listed in the rows, respectively.
Additional Points

Limitation. Lack of assessment of epilepsy-associated comorbidities and financial status of the study participants might greatly influence the quality of life.

Disclosure
The funder has no roles in the study design, data collection, analysis, decision to publish, or preparation of the manuscript.

Conflicts of Interest
The authors declare that there are no competing interests in this work.

Acknowledgments
We would like to thank all the study participants including epileptic patients and data collectors who enthusiastically helped us in the accomplishment of the study. This study was funded by the Debre Berhan University.

References


