



Investigation of Resilience in Patients with Epilepsy Referred to Medical Centers in Isfahan in 2021

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Abstract

Background: Epilepsy is a worldwide common neurological disorder characterized by an enduring predisposition to epileptic seizures. Protective elements are circumstances that help an individual cope with stressful events more effectively. Resilience may act as a protective factor against the subjective experience of hardship, especially when receiving a probable negative medical diagnosis.

Objectives: The purpose of this study was to explore resilience among patients with epilepsy.

Methods: This descriptive-analytical study was performed in 2021 on 250 patients with epilepsy referred to selected medical centers in Isfahan, who were selected by the simple random sampling method. Data collection tools included a demographic information questionnaire and Connor- Davidson Resilience Scale (CD-RISC). Data were analyzed in SPSS software version 26 using descriptive statistics such as the mean and standard deviation for quantitative variables and frequency and percentage for qualitative variables. Stepwise regression tests were used to examine the relationship between independent variables and dependent variables while controlling contextual and confounding variables.

Results: In this study, the mean (standard deviation) of the resilience score in epileptic patients was 60.34 ± 19.86 . The socioeconomic status and the level of education, but not marital status and gender, were found to correlate significantly with resilience ($P = 0.445$ and $P = 0.396$, respectively). Duration of epilepsy, age, and job status inversely correlated with resilience ($P = -0.269$, $P = -0.131$, $P = -0.155$, respectively).

Conclusions: According to the results of this study, increasing knowledge and understanding of the relationship between epilepsy and resilience may help obviate this problem in patients with epilepsy.

Keywords: Resilience, Epilepsy, Seizure

1. Background

Epilepsy is a worldwide common neurological disorder characterized by an enduring predisposition causing epileptic seizures, as well as by psychological, cognitive, neurobiological, and social ramifications (1). Statistics show that between 0.5 - 1% of people in the world suffer from epilepsy, which is estimated to be around 50 million individuals (2). In Iran, epilepsy occurs in about 7.8 to 18 cases per thousand people, which is higher compared to 5.8 - 8.4 cases in developed countries (3). In patients with epilepsy (PWE), seizures, psychosocial preferences, and difficulties associated with epilepsy are unpredictable (1), and which tools patients use to deal with the

challenges related to the disease are still arguable. It is necessary to recognize seizures and their complications as multifactorial phenomena, including disease-related factors, demographic characteristics, social factors, psychosocial and behavioral characteristics, financial barriers, and other healthcare parameters, as well as patient-provider relationships and treatment-related factors (4).

Protective elements are circumstances that help an individual cope with stressful events more effectively (5). Resilience can act as a protective factor against the subjective experience of hardship, especially when receiving a probable negative medical diagnosis. These features may help people overcome medical problems by rendering them less susceptible to negative mood situations that adversely

affect their health (6). Engle et al. investigated resilience and its clinical risk factors in adolescents and young adults with epilepsy. The recent cross-sectional study included 180 patients with epilepsy, and the results showed that psychological well-being and strengthening of psychological parameters influenced the therapeutic course of epilepsy, urging the researchers to recommend investigating other related dimensions as well (7). Also, Shahhamzeh et al. studied the relationship between self-management and quality-of-life in 162 patients with epilepsy, reporting a positive and statistically significant relationship between seizure control and self-management ($P < 0.05$), suggesting the latter is an important factor in the process of treating and controlling epilepsy (8). Studies on resilience focus on protecting elements that promote one's ability to cope positively with critical problems (5). The concept of resilience refers to an overall adaptive standard performance and presents itself as the dynamic experience of positive coping with resistance, uncertainty, failure, and conflict (9).

It is desirable to promote the patient's coping strategies to prevent him/her from being a passive observer and empower the patient so that he/she can resolve conflicts in his/her resources and surroundings. Resilience, or the capacity to better confront adversity, has been shown to prepare people to face the consequences of an illness and render them the flexibility to deal actively with catastrophic events. Resilient individuals can adapt to and perform better when encountering significant life changes because they can act stronger, smarter, and more powerful (6). The association between epilepsy and resilience is not well understood, with some aspects of this relationship being neglected. Also, this relationship remains an important area of study in both research and clinical areas, and it has not been fully investigated in epileptic patients.

2. Objectives

In this study, we aimed to investigate the relationship between resilience and the characteristics of patients with epilepsy.

3. Methods

3.1. Study Design

In the present descriptive cross-sectional study, the statistical population included patients with epilepsy referred to selected hospitals and care centers, Ayatollah Kashani, Al-Zahra, and Masih Epilepsy Center, in Isfahan.

3.2. Sample Size

The sample size was determined using two formulas, and the final sample size was determined to be 250.

$$\alpha = 0.05, \beta = 0.2, r = 0.346, r = 0.25$$

$$n = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}\right)^2}{\left[\frac{1}{2} \ln \left(\frac{1+r}{1-r}\right)\right]^2} + 3$$

$$= \frac{(1.96 + 0.84)^2}{\left[\frac{1}{2} \ln \left(\frac{1+0.346}{1-0.346}\right)\right]^2} + 3$$

$$= 102.5$$

And

$$n = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}\right)^2}{\left[\frac{1}{2} \ln \left(\frac{1+r}{1-r}\right)\right]^2} + 3$$

$$= \frac{(1.96 + 0.84)^2}{\left[\frac{1}{2} \ln \left(\frac{1+0.25}{1-0.25}\right)\right]^2} + 3$$

$$= 201.7$$

3.3. Procedure

Convenience sampling was conducted in June-October 2021. Patients were selected among those referring to the hospitals of Ayatollah Kashani, Al-Zahra, and Masih Epilepsy Center in Isfahan. Adult epileptic patients with a definite diagnosis of epilepsy based on detailed medical history and according to clinical findings were screened for inclusion criteria and then enrolled in the study. Inclusion criteria were the age of 18 to 65 years, disease duration of at least six months, definitive epilepsy diagnosis, and stable neurological functioning during the study. Patients who refused to give consent and those with mental diseases and abnormalities related to the neurological system were excluded from the study.

3.4. Tools

Data were collected through self-reporting using demographic characteristics and Connor- Davidson Resilience Scale (CD-RISC) questionnaires. The demographic characteristics questionnaire included queries about gender, age, duration of treatment, socioeconomic class, marital status, and educational level. The CD-RISC questionnaire was used to assess resilience. This scale has 25 items and unique measures aspects of resiliency using a 5-point Likert scale ranging from 0 = "not at all" to 4 = "true nearly all the time". The total score ranges from 0 to 100, with higher scores reflecting greater resiliency. The individuals scoring 50 or higher are regarded to

Table 1. The Level of Resilience in Patients with Epilepsy (n = 250)

Level of Resilience	No. (%)	Mean \pm SD	Std. Error Mean	P-Value = 0.05	Max	Min
Low (0 - 25)	1 (0.4)	60.34 \pm 19.86360	1.25628	0.000	97	23
Moderate (25 - 50)	83 (33.2)					
Good (50 - 75)	96 (38.4)					
High (75 - 100)	70 (28)					

have resilience (Table 1) (10). In Iran, Mohammadi et al. approved the reliability of the CD-RISC questionnaire with Cronbach's alpha of 0.89 (11).

3.5. Ethical Considerations

The study's protocol was registered and approved by the ethics committee of Isfahan University of medical sciences (IR.MUI.NUREMA.REC.1400.042), and written informed consent was obtained from the patients. Additionally, the privacy of personal information was strictly preserved. Individuals who were interested were directed to a private administrative office where they were initially given details about the study's purpose, participation conditions, and ethical considerations. Those who agreed to participate were requested to sign written informed consent.

3.6. Data Analysis

Data analysis was conducted in SPSS version 26. The association between resilience and nominal independent variables was assessed using spearman's chi-square test. In order to compare the mean score obtained from the CD-RISC questionnaire between different categories of demographic variables, we used the independent sample student *t*-test. The data were tested with the Kolmogorov-Smirnov test for homogeneity of variances.

4. Results

A total of 250 epileptic patients were enrolled in the study, of whom 131 (52.4%) were female. Most of the participants (n = 159, 63.6%) had an age of 18 - 39 years, with a mean age of 35.16 ± 10.28 years. Overall, 98 of the participants (39.2%) were self-employed; 95 (38%) were unemployed, and 57 (22.8%) were government employees. Most of the patients (n = 133, 53.2%) belonged to the lower socioeconomic class. Nearly two-thirds (68.8%) of the participants had been on treatment for five or more years (Table 2).

Table 2. Demographic Characteristics of Patients with Epilepsy (n = 250)

Variables	No. (%)
Age group (y)	
18 - 39	159 (63.6)
39 - 60	91 (36.4)
Gender	
Male	119 (47.6)
Female	131 (52.4)
Marital status	
Married	113 (53.2)
Unmarried	117 (46.8)
The highest educational level	
Post Graduate	0 (0.0)
Graduate	39 (15.6)
Intermediate or high school diploma	91 (36.4)
Under diploma	120 (48.0)
Employment status	
Unemployed	95 (38.0)
Self-employed	98 (39.2)
Government employees	57 (22.8)
Duration of treatment (mo)	
6 - 24	29 (11.6)
> 36	49 (19.6)
> 60	172 (68.8)
Socioeconomic class	
Upper class	15 (6.0)
Middle/lower-middle class	102 (40.8)
Lower class	133 (53.2)

The mean (standard deviation) of the resilience score in these patients was 60.34 ± 19.86 (Tables 1 and 3). Socioeconomic status and the level of education were significantly correlated with resilience ($P = 0.445$ and $P = 0.396$, respectively), while marital status and gender were not significantly associated with resilience. On the other hand, the duration of epilepsy, age, and job status were nega-

Table 3. The Standard Deviation and Average of the Score of the Connor-Davidson Resilience Scale (CD-RISC) in Patients with Epilepsy (n = 250)

	No.	Mean \pm SD	Std. Error Mean	P-Value = 0.05	Max	Min
Resilience (CD-RISC)	250	60.34 \pm 19.86360	1.25628	0.000	97	23

tively related to resilience ($P = -0.269$, $P = -0.131$, $P = -0.155$, respectively).

5. Discussion

In this study, we used the CD-RISC to assess the level of resilience in patients with epilepsy (60.34%) (Table 1). In another similar study by Tedrus et al., it was found that the control of seizures, normal EEG, and single-dosage treatment were related to high resilience (12). In contrast, Ring et al. showed the level of resilience in patients with epilepsy varied considerably, and it was lower than that reported in the present study, which can be due to different cultural or educational contexts (13).

Luyckx et al. reported a similar observation, identifying a significant association between low resilience and epilepsy behavioral consequences, and found that interventions, such as unique enrichment and improving the quality of life and a person's self-concept, could improve the items mentioned, as well as other functional dimensions (14).

Similarly, Jacoby and Baker argue that resilience can help epileptic patients address the unpredictability of seizure and overcome its adverse psychosocial consequences, resulting in personal growth and improvement regardless of adversities (15).

In our study, the analysis of demographic information revealed that age, socioeconomic status, level of education, duration of epilepsy, and job status, but not marital status and gender, were significantly associated with resilience. This finding was in accordance with the studies conducted by Verma and Rohan (16). In contrast, Bôas et al. showed that gender could affect the level of resilience, asserting that men utilize greater rational inclination when dealing with a problem and use their resources to rationalize in the face with stress generating situations (17).

There are several variable targets contributing to the improvement of resilience, including an emphasis on positive personal ability and the decrease of adherence problems. Resilience may help patients with epilepsy promote their ability to overcome challenges and adversities and cope with the uncertainties of the disease, as well as the clinical aspects and negative psychosocial sequela of

epilepsy (18). Nevertheless, resilience is a unique characteristic with variable presentations at different phases of life depending on environmental conditions (12).

In relation to the limitations of this study, we did not assess the impact of other components on the relationship between resilience and epilepsy, which could have affected responses to the questionnaires used. So, it is necessary to measure other psychological components in future studies and focus on the testing and development of appropriate interventions to prevent the adverse consequences of epilepsy.

5.1. Conclusions

We found an association between resilience, epilepsy, and demographic features, suggesting that paying attention to these aspects can be an excellent approach to improving patient care in those suffering from chronic diseases. Therefore, measuring resilience may help predict the outcomes of people dealing with serious illnesses and have implications for supporting susceptible patients. Improving the knowledge and understanding of the relationship between these intrinsic characteristics and demonstrative stability and coping strategies can help develop suitable support services and interventions.

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Footnotes

Authors' Contribution: All authors contributed equally to this study.

Conflict of Interests: The authors declare that they have no conflict of interest.

Ethical Approval: This study was approved under the ethical approval code of IR.MUI.NUREMA.REC.1400.042 (link: ethics.research.ac.ir/EthicsProposalView.php?id=208371).

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Informed Consent: Written informed consent was obtained from patients.

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