



Stigma accounts for depression in patients with epilepsy

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ABSTRACT

Objective: Epilepsy is a chronic disease with an increased risk of stigmatization due to psychosocial consequences of the seizures. Intuitively, one may well conclude that stigmatization would lead to depression in patients with epilepsy as well as in other patient groups with increased risk of stigmatization. Indeed, there are a few studies in support of this intuition. In this study, we aimed to investigate the relationship between level of stigmatization and the severity of the depressive symptoms in our patients with epilepsy.

Methods: This is a substudy of our main study, which aimed to develop a scale for the quantification of the stigma level in patients with epilepsy. The study included a total of 302 patients with epilepsy, who had at least a literacy level education and one-week-seizure-freedom. Beck Depression Inventory (BDI) was used to quantify depressive symptoms. The correlation between BDI scores and the Stigma Scale for Epilepsy-Self Report (SSE-SR) scores was evaluated. A regression analysis was done in order to parse out significant sociodemographic and clinical factors contributing to depressive symptoms. Statistical analyses were done using the Statistics Package for the Social Sciences software 24.0 package program.

Results: We saw that 46.9% (n = 139) of this population rated themselves as having at least mildly depressive symptoms with BDI (BDI > 9). There was a moderate positive correlation between stigma scores and BDI scores (p = 0.000, r = 0.504), and 96.3% of highly stigmatized patients had at least mildly depressive scores, 73.9% of the nonstigmatized group had none or minimal depressive scores. Stigma scores (β = .51), gender, educational level, seizure frequency, and income level were the variables significantly affecting the BDI scores. Stigma score accounted for 26.2% of the variance in the BDI score.

Conclusion: This study shows that stigmatization of the patients with epilepsy leads to depression in those patients. Therefore, protection of the patients with epilepsy against stigmatization may also help to protect them from a concomitant disabling condition. On the other hand, detection for depressive symptoms in already stigmatized patients with epilepsy may unearth a treatable condition.

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1. Introduction

Epilepsy has been known since the early ages of history and is regarded by the society as dangerous and frightening. In many studies, it has been reported that the social prognosis of epilepsy is worse than that of the clinical prognosis and therefore, it would not be sufficient to consider epilepsy as merely a neurological disease [1,2,3]. Stigma is an important factor affecting the social prognosis of epilepsy. Depression is not only the most common psychiatric condition among patients with epilepsy, but it is also more frequent in this population than in other chronic diseases and in general population [4,5]. Some studies supported that the level of depression was increasing as the level of stigma increased [6,7]. The stigma associated with epilepsy

was found to be associated with low self-esteem, high level of anxiety, and depression [8,9].

Our previously reported main study was conducted on 302 patients with epilepsy. Clinical and demographic characteristics were stratified, and stigma scores of the patients which we recently decided to refer as Stigma Scale for Epilepsy-Self Report (SSE-SR) within each strata were compared among themselves and shown in separate tables in our previous article [10]. The results of that study can be summarized as follows: 31.1% (n = 94) of the patients rated themselves as stigmatized, 85 of whom were within the moderate and the remaining 9 were in the highly stigmatized range. Patients with lowest education, lowest income, being currently unemployed or never employed, using three or more antiepileptic drugs, and having frequent seizures (least one seizure per week) were found to be more stigmatized as compared with the patients within other strata. No difference regarding the stigmatization was found in terms of gender, marital status, family history, and seizure type.

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As the major objective of the main study was to develop and report a self-report stigma scale that would be useful in Turkish population, we decided to be focused on this major objective in the previous paper and defer the report of the secondary objectives to subsequent separate papers. The association between stigmatization and depression is one of those secondary objectives, which we are intending to report in this paper.

2. Methods

2.1. Participants

The study included a total of 302 successive patients with epilepsy who were being followed in the Epilepsy Outpatient Clinics, who had at least a literacy level education and one-week-seizure-freedom. Stigma Scale for Epilepsy-Self Report was administered in the main study [10], and Beck Depression Inventory (BDI) was also rated. The study protocol was approved by the Ethics Committee of Bakirkoy Prof. Dr. Mazhar Osman Mental Health and Neurological Disorders Training and Research Hospital, Istanbul, Turkey. A written informed consent was obtained from each participant. The study was conducted in accordance with the principles of the Declaration of Helsinki.

2.2. Procedures

2.2.1. Sociodemographic data form

A sociodemographic and clinical data form, including questions regarding age, gender, marital and employment status, educational and income levels, age of the disease onset, number of antiepileptic drugs used, frequency of seizures, type of seizures, and family history of epilepsy, was administered. Income level was classified according to the minimum salary in January 2015 which was 1201.50 Turkish liras in gross and 949.07 Turkish liras (close to 300 USD (United States dollar)) in net.

2.2.2. Stigma scale for epilepsy-self report

In order to determine the stigma levels of the patients and their relatives, we developed two stigma scales in the main study, which will be referred as SSE-SR and Stigma Scale for Epilepsy-Informant Report (SSE-IR) [10]. Stigma Scale for Epilepsy-Self Report consists of 32 questions and 4-point Likert-type answering method and also five factors according to the factor loading values such as social isolation, discrimination, insufficiency, false beliefs, and stigma resistance (Cronbach Alpha = 0.915). The lowest calculated stigma score was 25, and the highest was 100 with a cut-off score of 50. The patients with a score of 25 to 50 were accepted as *not stigmatized*, those with scores between 51 and 75 were accepted as *moderately stigmatized*, and those with scores between 76 to 100 as *highly stigmatized*.

2.2.3. The BDI

The BDI is a 21-question, multiple-choice, self-report inventory for measuring the severity of depression [11]. Each question has 4 alternative options, and the participants are asked to select the option that best describes their feelings for the last 7 days among the options scored between 0 and 4. The total score ranges from 0 to 63, and higher scores indicate more severe depressive symptoms [12]. Turkish validity and reliability of the first version of BDI was made by Hisli et al., and the cut-off score for depression was accepted as 17 [13]. In this study, the scores were divided into 4 severity ratings in order to grade the depressive symptoms; for this purpose a slight modification was made in the conventional severity ranges: scores 0–9 were labeled as *none or minimal depressive symptoms*, scores 10–16 as *mild depressive symptoms*, scores 17–30 as *moderate depressive symptoms*, and scores above 30 as *severe depressive symptoms*.

2.3. Statistical analysis

Statistical analysis was performed using the Statistics Package for the Social Sciences (SPSS) software 24.0 package program version 24.0 software for MAC (SPSS Inc. Chicago, IL, USA). Descriptive data were expressed in mean, standard deviation, median, minimum, maximum, frequency, and percentage. The chi-square test and Fischer's exact test were used to compare the frequencies and percentages. Distribution of variables was measured with the Kolmogorov–Smirnov test. An independent sample *t* test was used to compare the mean values of normally distributed variables. Nonparametric tests, such as the Mann–Whitney U test and Kruskal–Wallis method were used, where applicable (depending on the number of subjects and for the homogeneity control). The correlation (Spearman) analysis was performed in order to see the simple correlation between the two main scales of the study (BDI and SSE-SR). This is followed by a univariate linear regression in order to ensure the significant contributors to the BDI score and a multivariate linear regression in order to clarify how strong the significant predictors accounted for the change in BDI score.

Table 1

Demographic and clinical characteristics, stigma and BDI scores and comparison of BDI scores of the patients (n = 302).

		Mean (range)					
Age		30.3 ± 9.9 (15–73)					
Age of onset		13.4 ± 5.4 (0–27)					
Disease duration		16.9 ± 9.6 (2–61)					
Stigma score		45.5 ± 13.6 (25–88)					
BDI score		11.7 ± 10.9 (0–54)					
		n	%	Mean BDI (SD)	p		
BDI severity	None or minimal (0–9)	163	53.9				
	Mild (10–16)	70	23.2				
	Moderate (17–29)	41	13.6				
	Severe (30–54)	28	9.3				
Gender ^b	Women	170	56%	13.55 (11.7)	0.01		
	Men	132	44%	9.22 (9.1)			
Marital status ^a	Single	166	55%	11.5 (11.02)	ns		
	Married	131	43%	11.88 (10.8)			
	Divorced	5	2%	11.4 (6.58)			
Educational level ^a	No formal education	25	8%	22.56 (12.74)	0.001		
	Primary school	82	27%	13.46 (11.05)			
	Secondary school	68	23%	11.47 (10.63)			
	Highschool	77	25%	8.82 (8.37)			
Occupation ^a	University and higher	50	17%	7.96 (7.26)			
	Unemployed	78	26%	14.88 (13.82)	0.004		
	Housewife	72	24%	13.85 (11.04)			
	Irregular worker	13	4%	13.77 (11.19)			
	Regular worker	100	33%	8.49 (7.55)			
	Student	33	11%	8.24 (7.76)			
Income level ^a	Retired	6	2%	10.17 (7.75)			
	None	139	46%	13.42 (12.55)	0.008		
	Minimum wage	93	31%	11.74 (9.61)			
Seizure frequency ^b	Above minimum wage	70	23%	8.03 (7.26)			
	Under control	128	42%	8.80 (8.89)	<0.001		
	≥1/year	68	23%	12.24 (9.22)			
	≥1/month	75	25%	14.09 (12.19)			
Seizure type ^b	≥1/week	31	10%	16.35 (14.63)			
	Generalized	120	40%	12.22 (11.67)	ns		
	Focal	172	57%	11.15 (10.06)			
Medication ^b	Other	10	3%	13.9 (14.05)			
	None	22	7%	9.77 (9.12)	ns		
	1 drug	193	64%	10.86 (9.87)			
	2 drug	56	19%	12.46 (11.59)			
Family history of epilepsy ^b	≥3 drug	31	10%	16.52 (14.79)			
	None	262	87%	11.2 (10.22)	ns		
	1st degree relative	20	7%	14.25 (12.12)			
	≥2nd degree relative	20	7%	15.2 (16.01)			

ns: nonsignificant.

^a Mann–Whitney U test.

^b Kruskal–Wallis.

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