

Stigma, self-esteem, and depression in adolescent patients with epilepsy

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Introduction

Epilepsy affects close to 1% of adolescents. Adolescents with epilepsy (AWE) experience comorbid psychiatric disorders, the most common of which is depression. Epilepsy in adolescents is associated with a perceived stigma of epilepsy and with low self-esteem.

Objective

This study aims to evaluate depression, perceived illness stigma of epilepsy, and self-esteem in a sample of AWE, and to evaluate the association between depression and the latter two variables in these patients.

Patients and methods

This is a cross-sectional case–control study. Adolescents (14–22 years of age) with idiopathic epilepsy in Kasr Al Ainy outpatient epilepsy clinic were interviewed using Structured Clinical Interview for DSM-IV Axis-I Disorders to assess the presence of depressive disorders. A total of 30 AWE with depression and 30 AWE without depression (as controls) were recruited, using convenient purposive sampling. The Internalized Stigma of Mental Illness Scale was used to assess perceived illness stigma of epilepsy and the Rosenberg Self-Esteem Scale was used to assess self-esteem in both cases and controls. Patients with depression were also interviewed by Beck Depression Inventory.

Results

Perceived internalized stigma of epilepsy was significantly higher and self-esteem was lower in the AWE with depression compared with patients without depression.

Conclusion

Perceived illness stigma of epilepsy and self-esteem are associated with depression in AWE.

Keywords:

adolescents, depression, epilepsy, self-esteem, stigma

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Introduction

Epilepsy is a common chronic neurological disorder, characterized by the presence of recurrent seizures. The International League Against Epilepsy defines an epileptic seizure as a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain [1]. However, classifying epilepsy merely as a neurological disorder is inadequate, as it is also a disorder with negative social consequences. Persons with epilepsy usually suffer from unemployment and/or underemployment, lower marriage rates, and social discrimination. All these factors usually result in an impaired quality of life and low self-esteem, which is intensified by the seizures themselves and sometimes even by antiepileptic drug use [2]. For most persons with epilepsy, a diagnosis of epilepsy is equal to stigmatization, in particular felt stigma, which in turn results in concealing epilepsy from others and spending a great amount of energy on this concealment. This situation also

creates a serious psychological burden and sometimes social restrictions in their lives [3].

Epilepsy affects close to 1% of children and adolescents [4]. In addition to seizures, these children and adolescents experience a variety of psychiatric comorbid disorders including depression and anxiety. It is most likely that such disorders are underdiagnosed and undertreated in patients with epilepsy (PWE) [5].

Adolescence is a life stage characterized by intense emotional and physical transformation. These young people are overwhelmed by intense feelings, while going through significant changes and assuming new behaviors. Epilepsy during adolescence may significantly affect social development and maturation as a result of stigmatization, and may also impair independence, social function, relationships, self-esteem, mood, and cognition. Literature data showed that children and adolescents with epilepsy (AWE) have a low self-esteem [6].

In Egypt, adolescents have a vague knowledge about the etiology of epilepsy. Misconceptions about and negative attitudes toward epilepsy are unexpectedly high among those adolescents [7].

This work aimed at evaluating perceived illness stigma of epilepsy, depression, and self-esteem in a sample of adolescent patients with idiopathic epilepsy, and finding the association between these three variables.

Patients and methods

This is a cross-sectional case control study conducted on 60 AWE named according to the International League Against Epilepsy classification [8]. They were divided into two groups: group A, which consisted of 30 adolescent patients with idiopathic epilepsy and comorbid depression according to *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV) [9] as diagnosed by the Structured Clinical Interview for DSM-IV Axis-I Disorders (SCID-I) [10], and group B, which consisted of 30 adolescent patients with idiopathic epilepsy without comorbid depression as controls. The age of the participants ranged between 10 and 19 years with no sex preference. Patients with any other comorbid mental or physical disability – including other comorbid neurological conditions, chronic medical illnesses, mental subnormal, and serious perception impairments (e.g. hearing and seeing problems) – were excluded. In addition, patients with a positive family history of depression and bipolar disorders were excluded.

The study was carried on after the approval of the scientific and the ethical committees of the Department of Psychiatry of the Faculty of Medicine, Cairo University.

Psychometric tools

- (1) SCID-I [10]: It is a diagnostic tool used to determine the presence of DSM-IV Axis-I disorders (major mental disorders). It consists of questions covering DSM-IV diagnostic criteria for each individual disorder and includes questions about duration of illness and change in clinical status. Every question is scored as either present, absent or inadequate information. In group A, SCID-I was used to confirm the diagnosis of a depressive disorder in an objective and structured way. In group B, SCID-I was used to exclude the diagnosis of any depressive disorder. Many studies worldwide approved validity and reliability of SCID. An Arabic edition of SCID-I was used [11].
- (2) Beck Depression Inventory [12]: It is a tool to confirm the presence of depression in patients in group A. An Arabic edition is available [13]. It is a self-report scale designed to assess DSM-IV defined symptoms of depression such as sadness, guilt, loss of interest, social withdrawal, increase and decrease in appetite or sleep, suicidal ideation, and other behavioral manifestations of depression over the previous 2 weeks. The inventory is composed of 21 groups of statements on a four-point scale, with the patient selecting the one that best matches his or her

current state. The score range varies from 0 to 63, where a higher score indicates greater depression severity. Scores from 14–19 indicate mild depression; scores from 20–28 indicate moderate depression; and scores from 29–63 indicate severe depression.

- (3) Hamilton Rating Scale for Depression (HRSD) [14]: This scale was applied to patients in group A only. An Arabic edition is available [15]. HRSD is a multiple-choice questionnaire that clinicians may use to rate the severity of the patient's depression. This scale was designed by Max Hamilton (1960, 1967). The original version consisted of 17 items and was later increased to 24 items by Klerman *et al.* [16]. The original version contains 17 items pertaining to symptoms of depression experienced over the past week. The clinician must choose the possible responses to each question by interviewing the patient and by observing the patient's symptoms. Each question has between three and five possible responses, which increase in severity. A score of 0–7 is considered to be normal, and scores of 20 or higher indicate moderately severe depression. The scale is not meant to be a diagnostic instrument [17]. HRSD was found to distinguish between different groups of patients drawn from general practice, day-patients care, and in-patients [18]. The concurrent validity is high [19]. The inter-rater reliability of HRSD is also consistently high [14].
- (4) Perceived stigma of epilepsy was measured in patients of both groups through the use of the Internalized Stigma of Mental Illness (ISMI) scale [20]. The ISMI is a widely used instrument consisting of 24 items, which have been grouped into four domains: alienation, stereotype endorsement, social withdrawal, and perceived discrimination. The 24-item ISMI is reported to have excellent internal consistency with an α of 0.91 and a test–retest correlation of 0.73. Each ISMI item contains a declarative statement about a potential stigma issue and participants respond in each statement by indicating their level of agreement: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. The scale has been translated and back-translated blindly by two psychiatrists with 7 years' experience in psychiatry.
- (5) Self-esteem was measured in patients of both groups by Rosenberg Self-Esteem Scale (RSES) [21] (arabic version by Abd El-Gabar *et al.* [22]). The RSES, developed by Morris Rosenberg, is a 10-item scale with items answered on a four-point scale that gives a range from 1 to 4 with a total range from 10 to 40; from strongly agree to strongly disagree, items were to represent a continuum of self-worth statements ranging from statements that are endorsed even by individuals with low self-esteem to statements that are endorsed only by persons with high self-esteem.

Procedure

- (1) Selection of the patients was done by interviewing the epileptic adolescent patients attending the epilepsy

- outpatient clinic on a fixed weekly day (every Sunday) (convenient purposive sampling) over a period of 4 months from June 2013 until September 2013.
- (2) The aim of the study and the tools used were explained to the patients and their parents in both groups. Informed written consent for participation was taken from the parents, except when the patient was more than or equal to 21 years old; the patient would then sign the consent himself.
 - (3) The informed written consent included the following: (i) explanation that participation of the patient is voluntary and will not affect the level of service presented to him by the hospital or any personnel, (ii) explanation of the aim of the research, (iii) reassurance of the privacy of the data obtained, and (iv) elaborating that the research may not be of direct benefit to the patient himself/herself.
 - (4) Patients were interviewed using the SCID-I [10] to assess whether a diagnosis of a depressive disorder is present or not, and consequently place the patient in groups A or B. A psychiatric short sheet was taken. It included demographics, past history, family history, substance history, and present mental state in addition to the onset, course, and duration of depressive symptoms for patients of group A. Clinical data of epilepsy were obtained from the patients' epilepsy files in the epilepsy clinic. The details taken from the epilepsy file included the date of the last attack (≤ 6 months ago/ >6 months ago), seizure type (partial with or without secondary generalization/generalized) and seizure frequency during the past year (we grouped the patients into controlled and uncontrolled considering only those with an interval between seizures more than 1 year to be controlled), antiepileptic medications (monotherapy/polytherapy), the electroencephalogram (EEG) findings (normal/abnormal EEG), and the medical and neurological examination findings. In addition, prewritten questions exploring how the epilepsy affects the educational and social lives of the patients were asked.
 - (5) The interview of each patient was completed in a single setting.
 - (6) Patients in group A (with comorbid depression) were offered referral to the psychiatry outpatient clinic in Kasr Al Ainy for further evaluation and proper follow-up and treatment of the depressive disorder.

Statistical analysis

Data were statistically described in terms of mean \pm SD, median and range, or frequencies (number of cases) and percentages when appropriate. Comparison of numerical variables between the study groups was done using Student's *t*-test for independent samples in comparing two groups and one-way analysis of variance test when comparing more than two groups. For comparing categorical data, χ^2 -test was performed. Exact test was used instead when the expected frequency is less than 5. Correlation between various variables was done using Pearson's moment correlation equation for linear relation in

normally distributed variables and Spearman's rank correlation equation for non-normal variables. *P* values less than 0.05 were considered statistically significant. All statistical calculations were done using computer program statistical package for the social science (SPSS Inc., Chicago, Illinois, USA), version 15 for Microsoft Windows.

Results

The mean age of the AWE was 17.67 ± 1.82 in the whole sample, where there was no significant statistical difference between both groups ($P = 0.260$). Both groups were matched as regards sex, marital status, educational level, and employment status (Table 1). In all, 83.3% of the patients of the AWE with depression and 70% of the AWE without depression got seizures in front of their peers at least once. When asked whether or not epilepsy affected their social lives, 73.3% of the patients of the AWE with depression reported that it did, whereas only 26.7% of the AWE without depression reported so. The latter difference between the two groups is statistically significant. On the other hand, when asked whether or not epilepsy affected their education, 63.6% of the AWE with depression reported that epilepsy affected their education, 26.7% denied that it did, and for 10% of them this question was not applicable (they had already dropped out of school before they got their first seizure). In AWE without depression, 26.7% reported that it did, 50% denied that it did, and for 23.3% of them this question was not applicable. This difference was also statistically significant. In all, 76.7% of the AWE with depression and 60% of the AWE without depression were ever physically injured because of epilepsy; 43.3% of the AWE with depression and 43.3% of the AWE without depression got urinary incontinence with their seizures.

Therefore, epilepsy was perceived to affect social life and education in AWE with depression significantly more than AWE without depression ($P = 0.001$ and 0.016 , respectively) (Table 2).

The relation of the perceived stigma of epilepsy (as measured by the ISMI) to sex, educational level, and seizure type and frequency in both groups are not statistically significant (Tables 3 and 4).

Overall 40% of the patients in group A had severe depression according to Beck Depression Inventory. In all, 23% had moderate depression, 20% had mild depression, and 17% had minimal depression (Fig. 1). In addition, 53.3% of the patients in group A had responded positively on the suicidal ideation question, where 30% of the patients had suicidal wishes only and 23.3% had a serious suicidal intent. Perceived (internalized) stigma of epilepsy was higher (by the ISMI scale) and self-esteem is lower (by the Rosenberg scale) in the AWE with depression compared with the AWE without depression. The differences were statistically significant ($P = 0.010$ and 0.011 , respectively) (Table 5).

There was no statistically significant correlation between self-esteem (as measured by the RSES) and perceived

Table 1 Sociodemographic data of the adolescents with epilepsy with and without depression

	Epilepsy with depression (group A) [n (%)]	Epilepsy without depression (group B) [n (%)]	P value
Marital status			
Single	23 (76.7)	27 (90.0)	0.299
Married	7 (23.3)	3 (10.0)	
Sex			
Boys	11 (36.7)	15 (50.0)	0.435
Girls	19 (63.3)	15 (50.0)	
Educational level (highest certificate obtained)			
None	7 (23.3)	7 (23.3)	0.900
Primary	7 (23.3)	9 (30.0)	
Preparatory	9 (30.0)	7 (23.3)	
Secondary	2 (6.7)	2 (6.7)	
Higher education	0 (0.0)	1 (3.3)	
Vocational education	5 (16.7)	4 (13.4)	
Occupation			
None	18 (60.0)	16 (53.3)	0.555
Nonskillful job	9 (30.0)	8 (26.7)	
Skillful job	3 (10.0)	6 (20.0)	

Table 2 Epilepsy-related variables (clinical and psychosocial) in the sample

	Group A [n (%)]	Group B [n (%)]	P value
Number of months elapsed since the last attack			
≤ 6	24 (80.0)	25 (83.3)	0.739
> 6 but < 24	6 (20.0)	5 (16.7)	
Seizure type			
Partial (with or without secondary generalization)	3 (10.0)	4 (13.3)	1.000
Generalized	27 (90.0)	26 (86.7)	
Seizure frequency			
Not controlled (interval between seizures ≤ 1 year)	26 (86.7)	28 (93.3)	0.389
Controlled (interval between seizures > 1 year)	4 (13.3)	2 (6.7)	
Seizures occurred in front of peers			
Yes	25 (83.3)	21 (70)	0.360
No	5 (16.7)	9 (30)	
Affected patient's social life			
Yes	22 (73.3)	8 (26.7)	0.001*
No	8 (26.7)	22 (73.3)	
Affected patient's education			
Not applicable	3 (10)	7 (23.3)	0.016*
Yes	19 (63.3)	8 (26.7)	
No	8 (26.7)	15 (50)	
Physical injury with seizures			
Yes	23 (76.7)	18 (60)	0.267
No	7 (23.3)	12 (40)	
Urinary incontinence with seizures			
Yes	13 (43.3)	13 (43.3)	1.00
No	17 (56.7)	17 (56.7)	
Antiepileptic drugs			
Monotherapy	16 (53.3)	19 (63.3)	0.40
Polytherapy	14 (46.7)	11 (36.7)	
Electroencephalogram findings			
Positive	20 (66.7)	15 (50.0)	0.304
Negative	10 (33.3)	15 (50.0)	

Bold values statistically significant difference, $P < 0.05$.

stigma of epilepsy (as measured by the ISMI) in the AWE with depression ($P = 0.327$, $r = 0.242$). Yet, there was a negative correlation between perceived stigma of epilepsy and self-esteem in the AWE without depression. This correlation was statistically significant ($P = 0.001$, $r = -0.610$) (Table 6).

Discussion

The results of our study supported the hypothesis that perceived illness stigma and low self-esteem were associated with depression in AWE.

Despite the multiple studies conducted in this field, only a few were conducted on adolescents [23–25]. Hermann et al. [26], who followed a review of 36 papers that assessed neuropsychiatric correlates of mood difficulties in PWE, found that although psychosocial variables in general were least often assessed they were the strongest predictors of mood difficulties in PWE. In 2012, Gandy et al. [27] conducted a systematic review of studies to assess the role of psychosocial variables in the prediction of psychopathology in PWE and found that most studies reported at least one significant psychosocial predictor of depression. A number of psychosocial variables were studied in PWE, among which are the public knowledge

Table 3 Relation of the perceived stigma of epilepsy (by the Internalized Stigma of Mental Illness) to clinical variables in the epileptic adolescents with depression

Group A (n=30)	ISMI		P value
	Mean	SD	
Sex			
Male	57.55	10.63	0.730
Female	59.42	15.81	
Educational certificate			
None	66.57	13.95	0.199
Primary	51.29	16.67	
Preparatory	57.33	13.15	
Secondary	49.50	2.12	
Vocational	64.40	8.17	
Seizure type			
Partial (with or without secondary generalization)	54.00	3.00	0.545
Generalized	59.26	14.63	
Seizure frequency			
Not controlled (interval < 1 year)	59.10	14.80	0.333
Controlled (interval > 1 year)	56.25	7.10	
Beck Depression Inventory			
No/minimal	53.40	13.58	0.102
Mild	60.17	9.91	
Moderate	50.14	12.92	
Severe	65.25	14.30	

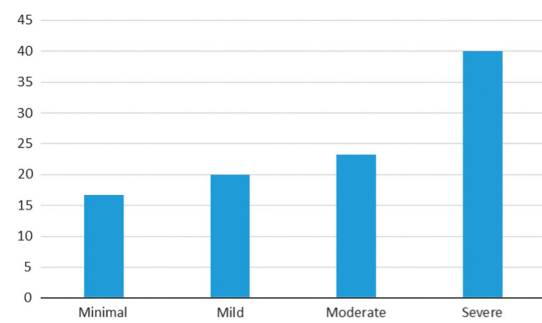
ISMI, Internalized Stigma of Mental Illness.

Table 4 Relation of the perceived stigma of epilepsy (by the Internalized Stigma of Mental Illness) to different variables in the epileptic adolescents without depression

Group B (n=30)	ISMI		P value
	Mean	SD	
Sex			
Male	46.73	15.32	0.309
Female	51.80	11.11	
Educational certificate			
None	52.71	12.67	0.843
Primary	49.78	15.02	
Preparatory	47.71	9.78	
Secondary	48.50	31.82	
Higher education	32.00		
Vocational	49.50	12.23	
Seizure type			
Partial (with or without secondary generalization)	47.75	16.13	0.813
Generalized	49.50	13.23	
Seizure frequency			
Not controlled (interval < 1 year)	51.10	13.22	0.450
Controlled (interval > 1 year)	34.00	11.31	

ISMI, Internalized Stigma of Mental Illness.

and attitudes toward epilepsy [28], self-management, financial strain, and activity restriction due to seizures, employment status, social support [29], socioeconomic status [30], current negative feelings related to having had epilepsy [23], and stigma of epilepsy perceived by the patient [24,29,31]. On the other hand, many studies investigated epilepsy-related and demographic variables as predictors of depression in PWE. For example, seizure frequency and control; polytherapy [24]; type of epilepsy; age of onset; duration of illness; antiepileptic drugs [32]; and associated neurological or mental abnormalities [33] have been studied.

Figure 1

Results of the Beck Depression Inventory in epileptic adolescents with depression.

The adolescence age group was chosen because adolescence is a life stage characterized by intense emotional and physical transformation. In individuals with some degree of any disease, adolescence may be particularly troublesome. Literature data showed that AWE are stigmatized and have a low self-esteem [6].

Idiopathic epilepsy was chosen in particular in this work to study the pure effect of epilepsy without the effect of any structural lesions.

Patients in group A had a diagnosis of depressive disorder according to DSM-IV. This was done to standardize the diagnosis of a depressive disorder and not just depressive symptoms, which could be present in the normal population temporarily and do not need special management for depression. Those patients were then offered psychiatric management and follow-up in the psychiatry outpatient clinic.

Few studies in this field have been conducted in the Middle Eastern countries, where the causes of epilepsy are still often considered to be evil forces, spiritual possession, and other devaluating conditions [34]. Masoudnia [35] and Ghanean *et al.* [28] studied the public knowledge and stigma of epilepsy in Tehran, Iran. Bener *et al.* [36] conducted a similar study in the United Arab Emirates. In Egypt, Effat *et al.* [37] and El Alameey *et al.* [38] studied the psychiatric comorbidity in children and AWE, but the last two studies were not concerned with the relation of the psychosocial variables with depression in epilepsy.

Clinical variables of epilepsy

The clinical epilepsy-related variables (seizure frequency and seizure type) in our study were not found to be associated with depression in AWE (Table 3). This may support the hypothesis that depression in PWE is mainly associated with psychosocial variables such as the perceived illness stigma of epilepsy. This is consistent with the results of most studies [26,39]. Another study by Caplan *et al.* [40] found no association between any of the epilepsy-related variables and depression in children and AWE, except for the type of epilepsy, as they found that children and adolescents with complex partial seizures

Table 5 Comparison of the results of the Rosenberg Self-Esteem Scale and the Internalized Stigma for Mental Illness scale in the epileptic adolescents with and without depression

Scale	Epilepsy with depression (group A)		Epilepsy without depression (group B)		P value
	Mean	SD	Mean	SD	
ISMI	58.73	13.97	49.27	13.40	0.010
Rosenberg	16.30	3.73	18.90	3.92	0.011

ISMI, Internalized Stigma of Mental Illness.

Table 6 Correlation between perceived stigma of epilepsy and self-esteem in the epileptic adolescents with and without depression

Self-esteem in the epileptic adolescents	Perceived illness stigma of epilepsy	
	r	P
With depression	0.242	0.327
Without depression	-0.610	0.001

Bold values statistically significant difference, $P < 0.05$.

are more likely to get depression than children and adolescents with childhood absence epilepsy. This has not been investigated in our study, as childhood absence epilepsy is out of our age group. In addition, the small number of patients with partial seizures in our sample did not allow for good comparison between patients with partial seizures and patients with generalized seizures in our study.

On the other hand, a few studies found an association between one or more of the epilepsy-related variables and depression in PWE. Grabowska-Gryzb *et al.* [41] and El Alamecy *et al.* [38], for example, found an association between seizure frequency and depression in PWE. Effat *et al.* [37] found an association linking seizure frequency and seizure type (namely the partial seizures) to many psychiatric disorders in AWE. Oguz *et al.* [42] found that epilepsy duration, seizure frequency, and polytherapy were determined to increase anxiety and depression in children and AWE, whereas age of seizure onset, seizure type, and EEG findings were not related to anxiety and depression in those patients. The discrepancy in the results may be because of the use of different scales for assessment of depression in the studies.

A number of standardized questions were asked to the patients to assess the perceived impairing effect of epilepsy on their lives. For example, the patients were asked whether they thought epilepsy affected their education or not and whether it affected their social life or not. In all, 63.3% of the AWE with depression thought that epilepsy affected their education, whereas only 26.7% of the AWE without depression thought so (Table 2). This is consistent with Caplan *et al.* [40], who found that AWE with depression had significantly more school problems than the AWE with no psychiatric diagnosis.

On the other hand, 73.3% of the AWE with depression thought that epilepsy affected their social life, whereas

only 26.7% of the AWE without depression thought so (Table 2). This is consistent with other studies that found that PWE and comorbid depression (of different age groups) have poorer quality of life across all scales (including social relations) than PWE without comorbid depression [25,26]. The last two differences were statistically significant.

Regarding the comparisons of the psychometric findings in both groups and the resulting associations, the following observations were made:

The results of this study showed that depression in AWE is associated with perceived illness stigma of epilepsy (as measured by the ISMI) (Table 4). This is consistent with the results of similar studies. For instance, Adewuya and Ola [24] showed that felt stigma was one of the predictors of depressive disorders in a group of Nigerian AWE. Carlton-Ford *et al.* [30] conducted a study on AWE and found that perceived illness stigma of epilepsy is significantly associated with higher levels of depressed mood in AWE. Other studies of PWE (mostly performed on adults with epilepsy) showed similar results [29,33,43,44] where they showed that stigmatization could cause depression in PWE.

On the other hand, the findings of Triantafyllou *et al.* [31] supported no association between perceived illness stigma and depressive symptoms in PWE. Their results stated that although the partial (focal) epilepsy patients felt less stigmatized they did not differ greatly in terms of depressive symptoms, in relation to the generalized epilepsy patients; implying that stigma is not associated with depressive symptoms in PWE. The results of our study, on the other hand, support that the type of seizure has no significant association with the depression in AWE, and that the type of seizure has no significant association with the perceived illness stigma of epilepsy; yet, they suggest that perceived illness stigma is associated with depressive disorders in AWE. The discrepancy in the results of both studies might be due to the fact that Triantafyllou *et al.* [31] screened for depressive symptoms, whereas in our study we only included patients with depressive disorders as diagnosed by the SCID-I [10].

In addition, our study showed that depression in AWE is significantly associated with lower self-esteem (as measured by RSES). This is consistent with the results of most similar studies [29,45,46,] which were conducted on adult PWE, in addition to Admi and Shaham [47] and Ferro *et al.* [48], which were conducted on AWE. Several theoretical models have been described in literature to

explain the link between self-esteem and depression. Among these were the vulnerability model (low self-esteem contributes to depression) and the scar model (depression erodes self-esteem) [49].

On the other hand, the study showed that higher perceived illness stigma of epilepsy is associated with lower self-esteem in the group of AWE without depression. However, the same association was not found in the group of AWE with depression (Table 4). This may be explained by the fact that low self-esteem and depression are generally associated (as explained above). Therefore, low self-esteem in AWE with depression is not necessarily associated with perceived illness stigma. Yet, in AWE without depression low self-esteem might be mediated through perceived illness stigma of epilepsy, and this is consistent with other studies that demonstrated a significant inverse association between self-esteem and perceived stigma of epilepsy in PWE [33,50] and AWE [51].

Conclusion

Epilepsy was perceived to affect social life and education in AWE with depression significantly more than AWE without depression. Perceived stigma of epilepsy was higher and self-esteem was lower in the AWE with depression compared with the AWE without depression. There was a negative correlation between perceived stigma of epilepsy and self-esteem in the AWE without depression.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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