

RESEARCH ARTICLE

Depression and Anxiety in Iranian Mothers of Children with Epilepsy

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Abstract

Objective

Epilepsy is a common neurological disorder in children. Parents with epileptic children have many psychosocial care needs. So the main goal of this study was to evaluate depression and anxiety in Iranian mothers with epileptic children.

Materials & Methods

We identified 30 mothers of children with epilepsy and 30 mothers of children without epilepsy with children aged between 8 and 12 years who met the study criteria. In all children with epilepsy, the mothers were the main caregivers and all these children lived in two-parent families. Children in the control group were in the same age. Ninety-eight percent of children in the control group lived in two-parent families with the mother as the main caregiver. All mothers fulfilled the Beck Depression Inventory (BDI) and Spielberger State-Trait Anxiety Inventory.

Results

According to these data, BDI scores were significantly higher in the mothers of epileptic children (mean of Beck score=16.5) compared to the control group (mean of Beck score=9.8). The total, Spielberger State-Trait Anxiety Inventory scores for mothers of children with epilepsy were 100.3, 51.7 and 48.6. However, these scores in the control group were 86.9, 45.1 and 41.8. These differences were statistically significant.

In a second analysis, using the demographic data, we did not find any statistically significant relation between anxiety or depression and the mothers' job, children's medication and other demographic variables.

Conclusion

Neurologists and psychiatrists need to develop better programs for adequate management of psychiatric disorders in mothers with epileptic children.

Keywords: Epilepsy; Mothers; Depression; Anxiety

Introduction

Epilepsy is the most common neurological disorder in children (1, 2). The unpredictable nature, duration and progression of epilepsy impose permanent stress on patients and their parents. Behavioral and emotional problems are detected higher in epileptic children as mentioned in many previous studies (3, 4). The child's psychologic health development and maintenance is under the influence of many family factors (5). The emotional strain of parents could affect their parenting skills and in turn may lead to the development of psychopathology in children (6).

Child-parent relationships in children suffering from epilepsy is another important factor in the development of behavioral problems in children and is also the critical predictor of adjustment for children with epilepsy (7, 8). Many studies demonstrated that mothers of epileptic children have more severe depression in comparison to mothers of the control group (6, 8). In the literature, maternal depression was correlated to the higher rates of child psychopathology (9, 10). Some of the previous reports suggest that parents of children with epilepsy also have a high risk of anxiety disorders (11). Highly anxious parents may perceive higher risks for their children and restrict their activities. The children's life quality is significantly affected by parental anxiety (12). Some reports suggest that parents of children with epilepsy have significantly lower quality of life scores and higher levels of depression and anxiety (13). Conversely, Baki et al. showed depression or anxiety symptoms were not higher in mothers of epileptic children compared to the control group (14). Williams et al. also reported a mean level of parental anxiety similar to the normal range.

Increased awareness of the impact of children's epilepsy on their parents may help clinicians to develop preventive and intervention strategies for parental mental health, which has an essential role in the well-being of the whole family. Cultural issues may be determinant in the effects of children's epilepsy on their parents (15). Therefore, the main goal of this study was to evaluate the depression and anxiety of Iranian mothers with epileptic children.

Materials & Methods

This study was a cross-sectional descriptive-analytic research. Children with epilepsy were recruited from the outpatient clinic of child neurology in Mashhad, the second largest city of Iran located in the North-East of Iran.

Selection of Study Population

Thirty 8 to 12-year-old patients with epilepsy and a normal IQ and their mothers who met the inclusion criteria were selected through a convenient sampling. Thirty healthy children matched for age and sex with a normal IQ whose parents did not have any severe medical problems currently or in their history were recruited from primary schools between December 2008 and June 2009. Another inclusion criterion was

living in a nuclear family. All the participants signed the informed consent. We only included mothers who were between 20 and 45 years of age. The guideline for providers was to use the clinical manifestation approved by electroencephalography.

A demographic questionnaire was designed to assess the socio-demographic features of the child and mother. These questionnaires were filled out through interviews with the mother. Mothers were not in their premenstrual or menstrual periods at the time of interview. This assessment also included the administration of Beck Depression Inventory (BDI) and Spielberger State-Trait Anxiety Inventory. BDI was developed in 1961 and validated in Iran (16, 17). This is an evaluation scale consisting of 21 items regarding physical, mental, cognitional and motivational symptoms. The highest score is 63 and the cut-off point for validity-safety in Iran has been determined as 17.

Points equal to or above 17 indicate a significant depressive disorder. Spielberger State-Trait Anxiety Inventory was developed in 1970 by Spielberg et al. (18, 19) and adapted to the Iranian population (18). This scale is self-determined by the individual. It consists of two subscales each consisting of 20 items. The subgroups include:

1. State-Trait Anxiety Inventory; it shows how an individual feels at a certain moment and in certain conditions.
2. Continuous anxiety inventory; it reveals how an individual feels generally regardless of the state and conditions of the moment. Scores from both scales range from 20 to 80. Higher scores indicate higher levels of anxiety. The cut-off point for validity-safety in Iran has been determined as 36. Points equal to or above 60 indicate a high level of anxiety. The statistical analysis of the study data was performed using SPSS for Windows 11.5 software package. Chi-square test was used to evaluate the categorical variables. For statistical significance, Fisher's exact chi-square test was used when at least one of the expected values was below 5 and Yates continuity adjustment was used for the rest of the variables.

Continuous variables of the case-control group were compared using the t-test. Comparison of BDI, Spielberger State-Trait Anxiety Inventory scores of the

mothers was performed using the MannWhitney U test. The relationship of the scores with certain risk factors was analyzed with the Pearson correlation analysis. P values less than 0.05 were considered statistically significant.

This study was approved by the Ethics Committee of Mashhad University of Medical Sciences. Written informed consent was obtained from the children's mothers.

Results

We identified 30 mothers of children with epilepsy and 30 mothers of children without epilepsy with the children aged between 8 and 12 years who met the study criteria. In all cases, the mothers were the main caregivers and all children in the case group lived in two-parent families. Children in the control group were in the same age. Ninety-eight percent of the children lived in two-parent families in the control group and in 100% of them the mother was the main caregiver. Table 1 shows the socio-demographic information of the mothers in the study and control groups. Table 2 demonstrates the demographic data of children in the two groups.

There were no significant differences between the socio-demographic data of the two groups and this allowed us to obtain clearer results in the comparison of the two groups. The mean scale scores of the groups are presented in Table 3.

According to these data, BDI scores were significantly higher in the mothers of epileptic children (mean of Beck scores=16.5) compared to the control group (mean of Beck scores=9.8). The total, Spielberger State-Trait Anxiety Inventory scores in mothers of children with epilepsy were 100.3, 51.7 and 48.6. However these scores in the control group were 86.9, 45.1 and 41.8. These differences were statistically significant ($p < 0.05$). In a second analysis, using a demographic data, we did not find any statistically significant differences between the mothers' anxiety or depression scores and their jobs, economic levels, level of education, number of children and children's medication.

Discussion

This case control study was conducted with outpatient samples using the Beck depression scale and Spielberger

State-Trait Anxiety Inventory to compare the severity of depressive and anxiety symptoms in mothers of children with epilepsy with the control group. Results indicated that depressive syndromes were significantly higher in the case group than the control group. Our findings also showed that anxiety in the mothers of epileptic children had a significant difference compared with the control group. Mothers of children with epilepsy had a higher total State-Trait Anxiety Score compared to the other group. This finding was similar to some previous reports (14, 20).

Although psychiatric symptoms, as a reaction to stress in mothers of children with epilepsy has been demonstrated in many studies (14, 19, 20), this study is the first study to our knowledge that shows the depression and anxiety in mothers of children with epilepsy in Iran.

Significantly high scores of Beck depression inventory in our study may suggest the presence of the consequences of emotional problems in families having an epileptic child. Although there has been a study mentioning the fact that children's epilepsy and maternal depression did not correlate (21), it is logically acceptable that any disease of the child will lead to distress in the mother and thus increase the mother's stress.

In the past, most of the interventions have focused on trying to improve children's compliance with medication or improving their psychological adjustment (22), but the present study showed the importance of the impact of the mother's mood status. Although some believe that depression in mothers of children who suffered from this disease might be due to the child's depression (23), in our study all children were considered without depression or other mental problems.

There was no statistically significant difference regarding some demographic variables including the economic level, number of children and level of education between the case and control groups. In the present study there was no association between the mother's depression and her outcome or job. This finding may be related to a cultural impact that lost maternal income for mothers who deferred employment to remain at home to care for their children is not so important for many women. There is another study supporting this result (24). On the contrary, a study suggested that employment is an important issue (20). This difference could be due to

different sample sizes, different settings or cultural backgrounds.

What we know based on the results of some studies is that maternal anxiety does have a negative impact on the child's function and development so this finding is very important for further interventions.

Epilepsy creates a high level of disconcertion because of the unpredictable nature. In the present study, trait anxiety was significantly higher in the case group in comparison to the control group. As trait anxiety reflects a stable tendency to respond with state anxiety in the anticipation of threatening situations, our results are close to other studies which found the high levels of both trait and state anxiety in mothers with epileptic children (14).

As we mentioned before, this research did not find any association between demographic variables and depression or anxiety. Therefore, economical issues, job or other factors were not significantly related to the mothers' depression and anxiety.

Although we did not focus on cultural issues in the study, this data might lead to further research to compare different cultural backgrounds in a multicentric study. It is possible that the mother-child relationship or the importance of the child's illness and its impact on the family are different in various cultures.

This study had some limitations. It is very important to

design further longitudinal studies to evaluate the related factors of emotional reactions of mothers with epileptic children more accurately. Furthermore, a larger sample size may lead to more reliable results. Besides, we could not evaluate the anxiety and depression of fathers who are very important in the family system. Because of the fathers' involvement with their jobs, most of the children were accompanied by their mothers to the clinics.

In conclusion, the present study showed that depression and anxiety were significantly higher in the mothers of epileptic children compared to the control group. These results are similar to some previous reports.

Considering these findings, in medical centers for management of epileptic children, psychiatric consultation should be provided in order to screen and manage depressive and anxiety disorders among parents. This can help them get through the child's disease more hopefully and let them remain effective caregivers for the child.

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Table 1. Socio-Demographic Characteristics of Mothers in the Case and Control Groups

	Case Group (N=30)	Control Group (N=30)
Age (mean) ±SD (years) -mode	35.1 ±7.1 – 30	34.2± 5.7 – 28
Number of siblings (n)		
1(%)	3 (10)	3(10)
2(%)	10(3.3)	12(40)
>2 (%)	17(5.6)	15(50)
Occupation		
Housewife n (%)	26(83.4)	24(80)
Occupied n (%)	4(16.6)	6(20)
Monthly family income (Rial) (mean ±SD)	5793330± 5449	4755170 ±6646
Mothers educations		-
≤ 6 years n (%)	2(6.6)	0(0)
Highly school n (%)	25(83.4)	28(93.4)
University	3 (10)	2 (6.6)

Table 2. Socio-Demographic Characteristics of Children in the Case and Control Groups

	Case Group (N=30)	Control Group (N=30)
Female/male	1/2	1/2
Age (mean) ±SD- mode	9.9±1.3 -9	9.6±1.4 -9
Age at onset of seizure in month (mean) ±SD - mode	0	44.4 ±38.9 24
Disease duration in years (mean)±SD- mode	0	5.9 ±2.8 -5
Generalized seizures n (%)	0	17 (56.8)
Absence n (%)	0	7 (23.3)
Complex partial n (%)	0	3(10)
Myoclonic n (%)	0	2 (6.6)
Focal n (%)	0	1 (3.3)
Number of seizures n (%) 0-1/month	0	27(90)
2-3/month	0	2(6.6)
More than 3/month	0	1(3.3)
Number of anticonvulsant medications n(%)	0	
1	0	7(26.6)
2	0	15(50)
3	0	7(26.6)
4	0	1(3.3)

Table 3. Mean Scores (±SD) of BDI, State and Trait AS in the Case and Control Groups

Scale administered	Case group	Control group	t values	f	p
BDS	16.5 ±10.5	9.8 ±7.9	2.72	3.5	0.005
State AS	51.7± 7.2	45.1± 3.3	4.5	1.9	0.000
Trait AS	48.6± 5.7	41.8± 3.8	5.4	5.1	0.000
Total AS	100.3	86.9	6.01	5.3	0.000

BDI=Beck Depression Inventory Scale; State AS= Spielberger State Anxiety Inventory; Trait AS= Spielberger Trait Anxiety Inventory

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