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High Rate of Psychopathology in Parents of Children with Epilepsy

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Abstract

Background: Mental health status of the parents and children are associated.
Objectives: The aim of the present study was to compare the psychopathology of parents of children with epilepsy with healthy children in an Iranian sample.
Methods: A total of 288 parents of children with epilepsy attending the Pediatric Neurology Clinic of Tabriz University of Medical Sciences, Northwest of Iran, were matched with 154 parents of normal children and evaluated using the Millon Clinical Multiaxial Inventory-III.
Results: Parents of children with epilepsy scored higher in all subscales, except for dependent personality pattern. Mothers of children with epilepsy scored higher in all clinical syndrome scales. The same pattern was observed for fathers of the children with epilepsy.
Conclusions: A high rate of psychiatric disorders was observed in Iranian parents of children with epilepsy. This pattern was not limited to mothers but was applicable to fathers, as well.

Keywords: Epilepsy, Millon Clinical Multiaxial Inventory, Personality Profile, Parental Psychopathology

1. Background

Epilepsy is a chronic disorder with a prevalence of 1.8% - 3.9% in different populations (1-3). It is one of the common neurological disorders during childhood affecting over 30 million children and adolescents (4). Our understanding of the pathophysiological mechanisms of the disease has been improved during the past decade, and a wide range of factors affecting its prognosis has been introduced (5). However, in spite of noteworthy progress in treatment, childhood and adolescent epilepsy is often a distressing condition (5). Studies indicate that to achieve the best outcome (especially in patients with childhood-onset epilepsy) a comprehensive diagnostic and treatment approach is needed to address several domains, like co-existing psychiatric and behavioral disorders (6). A review showed that the outcome is highly influenced by psychopathology in family members even more than illness factors themselves (7).

Parents play an irreplaceable role in children's lives. Epilepsy, like other childhood-onset chronic conditions, affects the whole family (8). Parents of children with epilepsy must face the distressing news of their child's diagnosis, stigma, and the associated medical risks. Their function as a family member may negatively be influenced by demanding treatment regimens and increased responsibilities towards the affected children. There are few studies on the impact of childhood epilepsy on the mental health of parents. Studies have shown that fathers and mothers of children with epilepsy are at risk for psychological distress (9) and parenting stress is increased when psychiatric disorders are added on epilepsy (10). They are also at high risk of having anxiety (11). The importance of parental anxiety is not limited to the negative impact on the mental health of parents but is significantly associated with the children's quality of life (11, 12).

Mothers are at higher risk of clinical psychiatric symptoms and interpersonal difficulties (13-15). One of the reasons might be the fact that most mothers are primary caregivers of children. Clinical psychiatric symptoms affect children's treatment outcomes and are associated with behavioral problems in children and their quality of life (13, 16) and should highly be addressed. However, the results of several studies are not consistent with these results. Another study on children with epilepsy showed that mothers have comparable scores on depression and

anxiety with mothers of healthy children (17). Along with methodological dissimilarity, cultural factors may have a considerable role in this difference (18).

Epilepsy affects the physical and mental health of individuals in Iran. A high proportion of these patients have a low health status and feel stigmatized by epilepsy (19) and experience a wide range of mental disorders (20). There are very limited data regarding the parents of children with epilepsy in Iran. These results are restricted to the reports on high scores of depression and anxiety in Iranian mothers of children with epilepsy (21). Another study on the same population reported higher levels of parenting stress in mothers, as well (22).

2. Objectives

Consequently, this study was conducted to evaluate psychiatric clinical symptoms in Iranian parents of children with epilepsy.

3. Methods

This cross-sectional study was conducted in 2016. The Review Board of Tabriz University of Medical Sciences and the Regional Ethical Committee approved the procedure prior to implementation. A comprehensive explanation of the aim of the study was given to the participants, and all gave written consent. Children of parents who refused to participate received the standard care. Participants had access to the results of the psychiatric evaluation.

3.1. Participants

Parents of consecutive children and adolescents with epilepsy who were referred to the Pediatric Neurology Clinic of Tabriz University of Medical Sciences were enrolled. Another group included the parents of children referred because of mild medical problems (such as common cold and digestive complaints) with no major problem selected as parents of a healthy child.

The presence of comorbid psychiatric disorders in children, severe physical disorders in parent or child, adoption, and parental education level of below an 8th-grade resulted in exclusion.

3.2. Procedure

The diagnosis of epilepsy was made by a board-certified child neurologist. An inclusive history, a thorough physical examination, evaluation of blood chemicals, neuroimaging, and electroencephalography were obtained from all children to make the diagnosis of epilepsy. Medical records were assessed, and children were screened for any other major general medical condition in this step. An established general medical condition in parents was only derived from their medical records.

If parents of the selected children agreed to participate, they were both referred to a child and adolescent psychiatrist for further clinical evaluation.

3.3. Measurements

3.3.1. Kiddie Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version

This semi-structured psychiatric interview with children of both groups was conducted using the Persian version of the K-SADS (23) for detecting psychiatric conditions in children. The Kiddie schedule for affective disorders and schizophrenia-present and lifetime version (K-SADS-PL) is based on criteria defined by the diagnostic and statistical manual for mental disorders, 4th edition (DSM-IV).

3.3.2. Millon Clinical Multiaxial Inventory-III

Millon Clinical Multiaxial Inventory-III (MCMI-III) includes 175 short yes/no questions, which evaluate 14 clinical patterns and 10 symptoms. Participants must have at least an 8th-grade education and 18 years of age. Psychometric properties of its Persian version have been reported by Sharifi et al. (24) 24. The test-retest correlation of raw scores is in the range of 0.82 (delusional disorder) to 0.98 (schizoid personality disorder). The reliability of the test was calculated by internal consistency and the obtained alpha was found to be in the range of 0.85 (alcohol dependence) to 0.97 (post-traumatic stress disorder). The validity of the MCMI-III scales was confirmed by diagnostic validity through calculating characteristics (positive, negative, and total predictably) and showed a high diagnostic validity for MCMI-III scales (24).

3.4. Statistical Analysis

Data obtained from research tools were analyzed by the Statistical Package for the Social Sciences (SPSS) version 22. Data are given in mean (standard deviation) or number (percentage), where appropriate. The mean scores were compared by the independent *t*-test between parents of children with epilepsy and those of healthy children. For all statistical tests, a P value of less than 0.05 was considered statistically significant.

4. Results

A total of 288 parents of children with epilepsy and 154 parents of healthy children completed the procedure. The number of girls was significantly lower in the healthy

group (P = 0.001). Demographic characteristics are described in Table 1. The ratio of mothers (P = 0.001) and the number of parents with higher education (P < 0.005) was significantly higher in the healthy group. Epilepsy group participants were mostly from rural areas (P = 0.001). The mean age of children and parents in the two groups was not significantly different.

Table 1. Demographic Information of the Participants[a]

	Children with Epilepsy	Healthy Children
Girls	125 (43.4)	39 (25.3)
Boys	163 (56.6)	135 (74.7)
Age of children	5.67 ± 2.62	8.25 ± 4.99
Mothers	142 (49.3)	103 (66.88)
Fathers	146 (50.4)	51 (33.12)
Age of parents	34.05 ± 6.73	36.07 ± 7.0
Rural area	63 (21.9)	14 (9.09)
Post graduate	15 (5.2)	74 (48.05)

[a]Values are expressed as No. (%) or mean ± SD.

Type of seizure was as follows: generalized tonic-clonic in190 (66%), clonic in 58 (20.1%), partial seizure in 39 (13.5%), and Lennox-Gastaut syndrome in one (0.3%) patient.

Results of clinical symptoms and personality disorder are described in Table 2. The most common parental psychopathologies of children with epilepsy were thought disorder (3.21%), borderline personality disorder (18.14%), clinical symptoms of depression (55.87%), and melancholic personality pattern (72.3%). Thought disorder (3.9%), borderline personality (2.6%), clinical symptoms of depression (11%), and compulsive personality pattern (22.7%) were common in parents of healthy children.

The last columns of Table 2 represent the results of the independent *t*-test for comparing mean scores between two groups. Parents of children with epilepsy scored higher in all subscales, except for dependent personality pattern.

We also examined differences between mothers and fathers in both groups of children separately (Table 3). Mothers of children with epilepsy scored higher in all clinical syndrome scales. They also scored higher in most clinical personality patterns, as well as major depression and delusional disorder.

The difference in this pattern was more remarkable between fathers of the two groups, where fathers of children with epilepsy scored higher in all subscales compared with fathers of healthy children.

5. Discussion

This study reported psychopathology in parents of Iranian children with epilepsy for the first time. According to our results, parents of children with epilepsy have a high rate of psychopathology, which was more obvious in fathers compared with fathers of healthy children.

Psychopathology in parents of children with epilepsy is a condition that is presently not being addressed on a wide scale; however, promising approaches are growing. Psychiatric conditions in parents could be discussed in two directions. First, the majority of studies agree that caregivers of children with chronic illness experience greater parenting stress than caregivers of healthy children (25, 26). This is most likely explained as a consequence of the difficulty in the parenting role and emotional involvement with a beloved one. Parenting stress is associated with greater parental responsibility for treatment management but also associated with poorer psychological adjustment in caregivers and their children (8). Epilepsy, as a chronic condition, seems to be in a similar situation, and parental stress correlates with the severity of epilepsy or a parallel disability (9).

Also, affective disorders in parents could mostly be a reactive problem to a child's condition. Most of the studies on these problems have focused on mothers. Several studies have indicated that depression and anxiety disorders are more prevalent in mothers of children with epilepsy (21). Correlates of maternal depressive symptoms (e.g., role ambiguity and satisfaction) also indicate a probable temporal relation (13). Although the present research was a cross-sectional study and could not measure temporal relations, results were in line with these reports, and mothers of our subjects had significantly higher scores on depression and anxiety syndromes compared with controls. Besides, this study added more evidence by including fathers. Higher depressive and anxiety symptoms were also observed in fathers of children with epilepsy compared with controls. Therefore, more attention should be given to the fathers of these children.

The second direction for explaining the psychopathology of parents is about symptoms and disorders, which are probably present before epilepsy in the child. Apart from the method of the present study, results showed a higher prevalence of personality disorders in parents of children with epilepsy. Personality is believed to develop and establish early in life and before adulthood. Very little data are available about the personality traits of parents of children with epilepsy and these results should be replicated with further studies. This may also raise questions about shared genetic factors between personality disorders and epilepsy. A comparable issue might be proposed

Table 2. Scores of Personality Scales and Clinical Syndrome Scales in Parents of Children with Epilepsy Compared with Parents of Healthy Children[a]

	Parents of Children with Epilepsy	Parents of Healthy Children	F	*t*	df	P
Clinical personality patterns						
Schizoid	11 (3.8)	8 (5.2)	5.17	5.71	440	< 0.005
Avoidant	42 (14.6)	10 (6.5)	1.52	8.22	350.53	< 0.005
Melancholic	73 (25.3)	28 (18.2)	15.01	4.70	440	< 0.005
Dependent	35 (12.2)	14 (9.1)	0.70	1.14	321.42	0.25
Histrionic	25 (8.7)	37 (24)	0.01	-5.89	301.90	< 0.005
Narcissistic	3 (1)	4 (2.6)	0.72	-2.67	327.46	0.01
Antisocial	5 (1.7)	0 (0)	8.22	7.83	440	< 0.005
Sadistic	11 (3.8)	3 (1.9)	18.32	5.19	440	< 0.005
Compulsive	15 (5.2)	35 (22.7)	0.002	-5.44	313.71	< 0.005
Negativistic	17 (5.9)	13 (8.4)	8.90	2.56	440	0.01
Masochistic	31 (10.8)	11 (7.1)	3.02	6.68	324.42	< 0.005
Severe personality pathology						
Schizotypal	9 (3.1)	3 (1.9)	1.04	7.12	320.99	< 0.005
Borderline	18 (6.3)	4 (2.6)	3.72	3.44	440	0.001
Paranoid	9 (3.1)	3 (1.9)	0.04	3.08	305.10	0.002
Clinical syndrome scales						
Generalized anxiety	35 (12.2)	5 (3.2)	10.93	7.84	440	< 0.005
Somatic symptoms	18 (6.3)	4 (2.6)	12.12	6.99	440	< 0.005
Bipolar disorder	7 (2.4)	1 (0.6)	0.73	6.50	306.94	< 0.005
Persistent depression	56 (19.4)	17 (11)	0.29	7.09	300.46	< 0.005
Alcohol use	5 (1.7)	0 (0)	37.06	8.78	440	< 0.005
Drugs use	14 (4.9)	0 (0)	59.99	5.10	440	< 0.005
Post-traumatic stress	12 (4.2)	4 (2.6)	10.44	8.35	440	< 0.005
Severe clinical syndromes						
Thought disorder	21 (7.3)	6 (3.9)	6.98	5.27	440	< 0.005
Major depression	14 (4.9)	2 (1.3)	5.59	9.71	440	< 0.005
Delusional disorder	7 (4.2)	1 (0.6)	14.20	6.93	440	< 0.005

[a]Values are expressed as No. (%).

for psychotic disorders, which were also more prevalent in parents of children with epilepsy compared with controls. These results indicate that parents of children with epilepsy will benefit from psychiatric evaluations.

Another issue about the psychopathology of parents is its negative effect on the child's mental health. The impact of depression is not limited to the mental health of mothers, but also affects the quality of relationships with the child and the whole family (15, 27). Parental anxiety is not only associated with children's quality of life 11 but may result in decreased quality of life of parents when it is combined with poorly controlled seizures in children, as well (12). This will add to the lower health-related quality of life of these children (28, 29). School guidance and counseling capacity might play an important role in assisting parents in this regard.

According to our results, there is a high rate of psychopathology in parents of children with epilepsy in Iran. Despite the temporal relation between having a child with epilepsy and a psychiatric condition, the results of this study are compatible with previous reports from the Iranian population of different regions. Studies with different methods of evaluation reported psychiatric symptoms in 60 to 75% of parents, with more than half having social dysfunction (30, 31). These results provided valuable data for the health care system, indicating that parents of chil-

Table 3. Results of Independent *t*-test, Comparing Mothers and Father of Two Groups Separately

	Mothers of Children with Epilepsy vs. Mothers of Healthy Children				Fathers of Children with Epilepsy vs. Fathers of Healthy Children			
	F	t	df	P	F	t	df	P
Clinical personality patterns								
Schizoid	0.64	2.10	211.73	0.04	8.03	6.05	195	< 0.005
Avoidant	9.51	1.87	243	0.06	1.58	11.26	85.17	< 0.005
Melancholic	8.74	0.75	243	0.45	2.24	6.98	80.04	< 0.005
Dependent	13.88	-2.90	243	0.004	28.79	4.53	195	< 0.005
Histrionic	0.27	-3.27	218.74	0.001	0.01	-5.51	83.90	< 0.005
Narcissistic	7.55	-0.56	243	0.58	0.10	-4.56	88.06	< 0.005
Antisocial	11.13	5.56	243	< 0.005	0.43	4.46	92.04	< 0.005
Sadistic	3.37	1.15	227.85	0.25	24.03	5.89	195	< 0.005
Compulsive	0.04	-5.53	223.47	< 0.005	0.34	-1.67	88.97	0.10
Negativistic	14.08	-1.70	243	0.09	0.95	6.01	81.47	< 0.005
Masochistic	1.90	1.14	210.29	0.16	10.91	10.43	195	< 0.005
Severe personality pathology								
Schizotypal	4.54	2.65	243	0.01	10.11	7.43	195	< 0.005
Borderline	10.73	.036	243	0.72	0.02	4.21	89.65	< 0.005
Paranoid	0.50	0.69	212.12	0.49	0.004	3.49	85.63	0.001
Clinical syndrome scales								
Generalized anxiety	31.11	2.49	243	0.01	0.50	10.38	103.91	< 0.005
Somatic symptoms	22.39	2.08	243	0.04	3.22	7.84	77.86	< 0.005
Bipolar disorder	2.50	3.85	192.96	< 0.005	4.38	4.79	195	< 0.005
Persistent depression	2.45	1.88	243	0.06	0.99	10.74	98.92	< 0.005
Alcohol use	0.91	4.81	230.21	< 0.005	37.60	7.20	195	< 0.005
Drugs use	14.85	3.25	243	0.001	41.51	1.04	195	0.003
Post-traumatic stress	0.06	3.02	216.95	0.003	14.40	9.28	195	< 0.005
Severe clinical syndromes								
Thought disorder	13.31	0.97	243	0.33	1.61	6.48	81.95	< 0.005
Major depression	86.82	4.21	243	< 0.005	8.74	9.80	195	< 0.005
Delusional disorder	0.92	3.82	221.19	< 0.005	20.67	5.65	195	< 0.005

dren with epilepsy are a vulnerable group of the population that need a plan for targeted interventions. The clinical benefit might be expected for both parents and children using timely and effective interventions for the psychiatric conditions of parents.

This study had some limitations. It was a cross-sectional study and could not measure temporal relations. The number of fathers in the control group was lower compared with the epilepsy group. As this was not a population-based study, this may result in bias as fathers with more profound psychopathology might be less involved in the health issues of their children and were not present during sampling. However, this gender difference was not significant. Parents of the two groups were also matched by age but had a significant difference in terms of educational level. This difference was considered in line with higher psychopathology in parents of children with epilepsy. This study was also not based on a structured clinical interview but used standard questionnaires. No data were gathered regarding a mental health or other chronic disorders of children per se that can be addressed in further studies. The duration of epilepsy (as a chronic disease) was not also included.

Another main limitation of this study was the difference between the two groups in terms of gender, urbanicity, and level of education. These differences might mainly be explained by the sampling method, which took place in an urban area, where the majority of children presented with mild symptoms lived around. This limitation decreases the generalizability of results because of confounding factors. However, this cannot limit the significance of the rate of psychiatric conditions in this large sample of parents of children with epilepsy, which was the main aim of this study.

5.1. Conclusions

In conclusion, this study was the first to evaluate psychopathology in parents of children with epilepsy in Iran and reported high rates of affective symptoms, as well as personality, substance use, and psychotic disorders in this group. This issue should be targeted in health care programs and counseling programs at schools.

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Footnotes

Authors' Contribution: Shahrokh Amiri and Sara Farhang designed the research. Shahrokh Amiri, Arash Mohagheghi, Meygol Taghibeigi, Mehran Aghamohammadpour, and Nahid Abdi collected the clinical data. Nahid Abdi and Salman Safikhanlou performed Statistical analysis and interpreted the data. Shahrokh Amiri and Arash Mohagheghi drafted the manuscript. Sara Farhang revised it critically for important intellectual content. All authors have read and approved the final manuscript.

Conflict of Interests: The authors declare that they have no competing interests.

Ethical Approval: The Review Board of Tabriz University of Medical Sciences and the Regional Ethical Committee approved the procedure prior to implementation.

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