



Psychiatric symptoms and health-related quality of life in children with epilepsy and their mothers

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ABSTRACT

Purpose: This study evaluated the psychiatric symptoms and health-related quality of life (HRQL) of children with epilepsy and psychiatric symptoms of their mothers, and compared them to those of healthy children and their mothers. This study also explored the influence of the child-related and maternal psychiatric variables and seizure-specific factors on the HRQLs of children with epilepsy according to both the children's and parents' perspectives.

Method: Ninety-nine children with epilepsy (8 to 17 years old), their mothers, and a control group (n = 51) participated in this study. The depression and anxiety symptoms of the children were assessed using the Child Depression Inventory (CDI) and the Screen for Child Anxiety-Related Emotional Disorders (SCARED), respectively. The severities of the attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD) symptoms were assessed via the mother-rated Turgay DSM-IV-Based Child and Adolescent Behavioral Disorders Screening and Rating Scale (T-DSM-IV-S). In addition, the mothers completed the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) to assess their depression and anxiety symptoms, respectively. Child-reported and parent-reported Pediatric Quality of Life Inventories were used to evaluate the HRQLs of the children.

Results: The patients exhibited higher inattention and ODD scores than the controls did. With the exception of the child-reported physical health scores, all of the child- and parent-reported HRQL scores were significantly lower in the patient group. According to the regression analysis, the child-related psychiatric and seizure-specific factors, but not the maternal psychiatric factors, were associated with the child's HRQL. The explained variances for the overall HRQL and HRQL subscales were similar between the child-reported (0.373 to 0.654) and parent-reported (0.499 to 0.682) questionnaires. The largest contributors to the total variance were the child-related psychiatric factors for both the child-reported and parent-reported HRQLs by far.

Conclusion: Epilepsy is associated with a poor psychiatric status and HRQL in childhood. The impact of epilepsy on the HRQL occurs mainly through child-related psychiatric factors. Both the child-reported and parent-reported questionnaires seem to be useful for the evaluation of the HRQL in pediatric epilepsy cases.

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1. Introduction

Epilepsy is among the most common neurological disorders of childhood, and it is recognized by the transient occurrence of signs and/or symptoms due to abnormal, excessive, or synchronous neuronal activity in the brain, affecting 4 to 8 per 1000 children [1]. Unfortunately, epilepsy has unfavorable impacts on various facets of the lives of the affected children. For example, children suffering from epilepsy are at greater risk of psychiatric impairment, including depression, anxiety, inattention, and behavioral problems [2–5]. In addition, having a child with epilepsy

can impose serious stress upon the mother. Psychosocial problems, high stress levels, depression, anxiety, and other negative emotions have been reported in mothers of children with epilepsy [6,7]. Therefore, this disorder may negatively affect the psychiatric statuses of both the child and the mother, which is likely to have a serious effect on the quality of life (QoL) of the affected child.

It has long been recognized that childhood epilepsy is correlated with a higher frequency of psychiatric problems. These children are at a three to six times higher risk for psychopathology when compared with children with a chronic medical disease not involving the central nervous system and in the general population, respectively [2]. Among these comorbid psychiatric problems, depression and anxiety disorders appear to be the most common. According to self-reported instruments, the prevalence of depression ranges from 23 to 26% [3]. The prevalence

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of anxiety disorders, in comparison, has been reported as 15–20% [3,8]. Although the data are limited, elevated ratios of attention problems, impulsivity, and behavioral dyscontrol have also been found in these children [4,5,9].

Unfortunately, the unfavorable effects of epilepsy are not limited to the child who is suffering from seizures, but they also influence the parents. Because mothers are often the primary caregivers, they are particularly at risk for experiencing distress and psychiatric problems [6]. Cross-sectional studies have shown that the mothers of children with epilepsy are at risk for depression and anxiety [6,10,11]. Several prospective studies have also supported the link between maternal psychopathology and childhood epilepsy, showing higher risks of depression and anxiety in the mother after her child is diagnosed with epilepsy [7,12]. Maternal psychiatric problems may have impacts on many aspects of the outcomes of children with epilepsy. In the literature, there are findings about the associations between maternal psychiatric problems and psychopathology in these patients [13]. Moreover, poor maternal mental health can also affect the adherence to treatment and the child's adaptive functioning [14]. Given that the management of epilepsy requires the determination of the potential impacts of epilepsy on all domains of life, addressing maternal psychiatric problems seems to be valuable.

Because QoL assessments are an important component of the clinical management of any disease, and QoL improvement is one of the most important goals for clinicians, various studies have focused on QoL assessments and the determinants of QoL outcomes in pediatric epilepsy. The findings of these studies consistently show that children with epilepsy are more likely to have poorer QoLs than the general population [15–17]. However, they have yielded mixed results regarding the QoL determinants due to methodological differences. For instance, some studies have considered only the effects of the seizure-specific factors, such as age at onset, duration, and medical treatment of epilepsy, on the QoL [18,19]. Other studies have taken into account the psychiatric problems of the children or parental/familial variables [20,21]. To date, only a few studies have addressed the seizure-specific, psychiatric, and parental/familial factors together [22–25].

Another important difference among the QoL assessment studies is the use of self-reported versus parent-reported approaches. Ideally, a QoL assessment should incorporate the child's own perception of how he or she is affected by epilepsy and its treatment. However, the value of the child's point of view is questionable in young children and in patients with cognitive impairment. Therefore, authors have emphasized the importance of using both self-reported and parent-reported questionnaires in children with chronic health conditions [26]. Most of the previous pediatric epilepsy studies used only the parent-reported approach to assess the QoL. Although the findings are not consistent, they generally indicated that the seizure-specific, psychiatric, and parental/familial factors may all affect its expression [15,19,24,27–29]. However, research based on the child's own reporting has revealed mixed findings about the determinants of the QoL. For example, a study by Fayed et al. indicated that, from the child's perspective, the QoL is strongly related to their mental health and social support, but not to their seizures [30]. In other studies, however, school-aged children have reported poorer QoL outcomes linked to seizure-specific factors [16,18,22,31]. Thus far, limited studies have addressed the QoL issue in pediatric epilepsy via both parent-reported and child-reported questionnaires [22,32–34].

Given the challenges described above, the objectives of this study in a cohort of children with epilepsy were to assess the levels of the depression, anxiety, attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD) symptoms of the children, and the anxiety and depression levels of their mothers, and compare them to those of healthy children and their mothers. In addition, this research evaluated the health-related quality of life (HRQL) of the children according to both child-reported and parent-reported questionnaires to illuminate the child-related

psychiatric, maternal psychiatric, and seizure-specific factors which independently influence the QoL. We expected that the children with epilepsy and their mothers would exhibit greater severities of psychiatric symptoms, and that the children with epilepsy would show poor QoLs when compared with the controls. We also hypothesized that all of the abovementioned factors may be independently associated with the QoLs of children with epilepsy.

2. Material and methods

2.1. Subjects

The sample consisted of children and adolescents with epilepsy who applied to a child neurology outpatient clinic in Turkey. All participants were outpatients, and their diagnosis of epilepsy was made by pediatric neurologists. The inclusion criteria were as follows: 8–18 years of age and at least 3-month duration of epilepsy. Exclusion criteria included the presence of a major physical/neurological illness other than epilepsy (e.g., cardiovascular disorders and cerebral palsy), psychotic disorders, bipolar disorders, autism spectrum disorders, and substance abuse/dependence. Patients who had a history of taking psychotropic medications within the last 3 months were also excluded. Intellectual disability of children and low educational level of mothers might impede the fulfillment of questionnaires properly; therefore, children also were excluded if they had a history of intellectual impairment or if their mothers had an educational level of less than 5 years. The control group was composed of healthy children and their mothers from the schools near to hospital area. Excepting the presence of epilepsy, the same inclusion and exclusion criteria were applied to the controls.

2.2. Demographic and clinical variables

A standardized form was used to collect information about demographic data (age and gender) and medical information (age at onset of epilepsy, number of antiepileptic drugs, frequency of seizure, duration of epilepsy and duration of seizure-free period).

2.3. Psychological measures

2.3.1. The Child Depression Inventory (CDI)

The CDI was used to assess the levels of depressive symptoms in childhood [35]. It is composed of 27 items, and each item is scored as 0, 1, or 2, according to the severity of the symptoms. These items evaluate the severity of depression for the previous 2 weeks. The scale was adapted for the Turkish sample [36]. Cronbach's alpha of the scale was found as 0.82 in the present study.

2.3.2. The Screen for Child Anxiety-Related Emotional Disorders (SCARED)

This instrument is a measure designed to assess for anxiety disorders symptoms in childhood [37]. It is composed of 41 items, and each item is scored on a 3-point scale, according to the severity of the symptoms. Findings showed that the validity and reliability of SCARED total scores were satisfactory for the Turkish population [38]. Cronbach's alpha scores were 0.91 for full scale in this sample of children.

2.3.3. The Turgay DSM-IV-Based Child and Adolescent Behavioral Disorders Screening and Rating Scale (T-DSM-IV-S)

This scale was developed by Turgay and evaluates ADHD, ODD, and CD based on the DSM-IV diagnostic criteria [39]. It is composed of 41 items, and each item is scored on a 4-point scale, according to the severity of the symptoms. In this scale, nine items measure inattention, nine items measure hyperactivity-impulsivity, eight items measure oppositional-defiant behavior, and 15 items measure CD symptoms. The scale was adapted for the Turkish population by Ercan et al. [40]. It was fulfilled by mothers and it had acceptable internal consistency, with a Cronbach's alpha of 0.88 for the inattention score, 0.90 for the

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