Research in Developmental Disabilities 45–46 (2015) 120–128

Contents lists available at ScienceDirect

Research in Developmental Disabilities

Effect of learning disabilities on academic self-concept in children with epilepsy and on their quality of life

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ARTICLE INFO

Article history:
Received 15 December 2014
Received in revised form 11 June 2015
Accepted 7 July 2015
Available online 30 July 2015

Keywords:
Academic self-concept
Learning disability
Quality of life
Children
Epilepsy

ABSTRACT

Academic self-concept could significantly affect academic achievement and self-confidence in children with epilepsy. However, limited attention has been devoted to determining factors influencing academic self-concept of children with epilepsy. We aimed to analyze potentially significant variables (gender, frequency of seizures, duration of epilepsy, intellectual disability, learning disability and attention deficit hyperactivity disorder) in relation to academic self-concept in children with epilepsy and to additional domains of their quality of life. The study group consisted of 182 children and adolescents aged 9–14 years who completed the SPAS (Student's Perception of Ability Scale) questionnaire determining their academic self-concept and the modified Czech version of the CHEQOL-25 (Health-Related Quality of Life Measure for Children with Epilepsy) questionnaire evaluating their health-related quality of life. Using regression analysis, we identified learning disability as a key predictor for academic-self concept of children with epilepsy. While children with epilepsy and with no learning disability exhibited results comparable to children without epilepsy, participants with epilepsy and some learning disability scored significantly lower in almost all domains of academic self-concept. We moreover found that children with epilepsy and learning disability have significantly lower quality of life in intrapersonal and interpersonal domains. In contrast to children with epilepsy and with no learning disability, these participants have practically no correlation between their quality of life and academic self-concept. Our findings suggest that considerable attention should be paid to children having both epilepsy and learning disability. It should comprise services of specialized counselors and teaching assistants with an appropriate knowledge of epilepsy and ability to empathize with these children as well as educational interventions focused on their teachers and classmates.

1. Introduction

Epilepsy significantly influences lives of affected children (Sadeghi, Fayed, & Ronen, 2014). Considerable attention has been given to various behavioral consequences of epilepsy (McDermott, Mani, & Krishnawaswani, 1995) and their effect on

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http://dx.doi.org/10.1016/j.ridd.2015.07.018
0891-4222/

quality of life (Hrabok, Sherman, Bello-Espinosa, & Hader, 2013). The school environment, in which they spend a significant amount of time, and where socialization takes place, plays an important role in lives of children and adolescents with epilepsy (CWE). For this reason, a number of studies (Bannon, Wildig, & Jones, 1992; Bohac & Wodrich, 2013) have focused on how CWE function in a school environment. Attention has been devoted also to knowledge of epilepsy among teachers and their attitudes toward people with epilepsy (Mecarelli et al., 2011).

Recent studies have focused on comorbidity of epilepsy (Asato, Caplan, & Herman, 2014). From the perspective of academic achievement, the effect of epilepsy on cognitive function (Memisevic & Sinanovic, 2009), prevalence of learning disabilities (LD) and attention deficit hyperactivity disorder (ADHD) is especially important. The prevalence of ADHD in children with epilepsy is many times higher than in the total population, reaching a value between 14% (Hesdorffer et al., 2004) and 38% (Dunn, Austin, Harezlak, & Ambrosius, 2003) depending on the diagnostic criterion used. The relationship between epilepsy and ADHD has been studied systematically in surveys (Reilly, 2011). ADHD has also been identified as one of the essential comorbidities influencing academic performance of CWE. Hermann et al. (2008) evaluated cognitive development in children with recent onset of seizures and found that children without comorbidity were similar to controls at baseline and 2-year follow up, whereas those with epilepsy and ADHD exhibited significantly lower scores. A high prevalence of LD such as dyslexia (13–32%), dysgraphia (35–56%) or dyscalculia (20–38%) in the group of CWE represents another important factor (Fastenau, Shen, Dumm, & Austin, 2008).

It is known that epilepsy in children influences their academic achievement, both in terms of their academic self-concept (Austin, Huberty, Huster, & Dunn, 1998) and ability to fulfill societal norms (Feeman & Hagen, 1990). These two aspects of academic achievement are related but distinct. Children who achieved very good results in their ability to fulfill societal norms but their academic self-concept was very low have been reported (Boersma & Chapman, 1979). Attention has also been paid to the objective measuring of academic achievement using standardized tests. Reilly and Neville (2011) summarized findings related to this topic and concluded that CWE obtain on average lower scores in the area of academic achievement than the total population. However, it is unclear whether this could be explained by a greater number of CWE with an associated intellectual disability and/or LD, or whether CWE achieve the same low scores in the area of academic achievement even if they have normal cognitive functions and no LD. Some studies (Oostrom, Smeets-Schouten, Kruitwagen, Peters, & Jennekens-Schinkel, 2003) show that significant differences remain even when effects of cognitive function and LD are taken into consideration. However, others (Williams et al., 1996, 2001) reported comparable academic achievement in the areas of reading, mathematics and grammar between CWE without LD or mental deficits and their peers.

Not enough attention has been devoted to academic self-concept in children with epilepsy (Austin et al., 1998; Huberty, Austin, Huster, & Dunn, 2000) as well as different factors influencing their academic self-concept. Following up on our recent paper (Brabcová, Kršek, Kohout, Jošt, & Zárubová, 2015), the main aims of the current study were (1) to determine effects of various factors on academic self-concept in children with epilepsy, (2) having identified LD as the most significant factor in our analysis, to compare academic self-concept in children with epilepsy combined with a learning disability (hereafter denoted CWE + LD) and children with epilepsy but without a learning disability (hereafter denoted CWE − LD), and (3) to analyze possible correlations between academic self-concept and quality of life in both groups of CWE.

2. Methodology

2.1. Instruments

2.1.1. SPAS questionnaire

Academic self-concept was determined using SPAS (Student's Perception of Ability Scale), which was first introduced by Boersma and Chapman (1979). The Czech version of the questionnaire contains a total of 48 dichotomous questions which are divided into 6 scales of 8 questions. Each scale measures academic self-concept in the following areas:

1. General school-related abilities
2. Mathematics
3. Reading
4. Spelling
5. Writing
6. Confidence.

The Czech version of SPAS was validated by Matějček and Vágnerová (1992). It was found that the Czech version had very good psychometric properties. The results for the individual scales, as well as for the total score, were converted to sten scores using tables in the questionnaire manual (Matějček & Vágnerová, 1992). It is recommended to use sten scores in presentation of the results obtained using SPAS because unconverted rough scores may be confusing if the experiment group differs in age and gender from the group on which the standardization study was carried out. The questionnaire is suitable for children aged 9–14 years.