Impact of Epilepsy on Children’s Academic Performance

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Abstract

Most children living with epilepsy are typical learners who would, under normal conditions, perform well academically. This is not always the case with children exhibiting complex and more severe forms of epilepsy in which the epilepsy is associated with known or suspected brain abnormalities. For some children, frequent seizures and medical investigations may result in several days of missed school, consequently compromising learning. It is the intention of this study to examine the relationship between epilepsy and school performance. The authors shall regard epilepsy as seizure disorder resultant from an abnormal discharge of electric energy in the brain. It is our conviction that the results emanating from this study will generate debate leading to adoption of effective strategies for managing learners living with epilepsy within classroom situations. A sample of 20 children living with epilepsy was conveniently selected from 5 schools within an urban environment in Masvingo, Zimbabwe. The children will be interviewed to determine problems they encountered, which impacted on their learning. Ten teachers teaching these children were also interviewed to solicit their impressions and experiences regarding the impact of epileptic seizures on children’s academic performance. The study revealed that mild epilepsy and frequent medication impacted on school performance. Epileptic seizures emanating from extensive brain abnormalities also resulted in specific learning difficulties and developmental delays. Appropriate strategies that encompass individual education programmes should be employed to assist learners living with epilepsy.

Introduction

The relationship between school performance and epilepsy is a topical issue that needs to be examined closely. It is estimated that 30% of children epilepsy will encounter severe learning and educational problems (www.bc.epilepsy.com). Although studies have been carried out on how to deal with epilepsy in social situations, very little has been done to examine the impact of epilepsy on children’s academic performance in Zimbabwe. It is this knowledge gap that this study seeks to fill.

Although school personnel may process factual elementary knowledge about seizures and related safety concerns, they may be less informed on how epileptic seizures impact on
children’s learning (Elliott 2005). It is the intention of this study to equate epileptic seizures to children’s academic performances. Children with epilepsy are usually of normal intelligence but some do not do well academically. Neurological impairments, frequent seizures or adverse affects of seizure medications can affect school performance (epilepsy.com).

Conceptual framework

The Salamanca Conference (1994) stipulated the need to recognize the fundamental rights of every child to education within an inclusive scenario. The Salamanca Statement further claimed that every child has unique characteristics interests, abilities and learning needs. Consequently, children with special educational needs must have access to regular schools which should accommodate them within a child centred pedagogy.

The goals of education for all (EFA) were given impetus at the Jomtien Conference (1990) and the Dakar EFA Conference of 2000. The Dakar Conference referred to the excluded members of the community such as girls and children with special needs.

The Education Act of 1996 (revised) adopted the United Nations Declaration on the Rights of the Child and echoed the need to include children within education circles despite gender, ethnic or any other recognisable differences. Similarly, the Nziramasanga Commission (1999) echoed the need to include children with disabilities and those in especially difficult circumstances.

Definitions

Epilepsy is a disorder involving a constellation of symptoms that vary in frequency and intensely from child to child (Elliott 2005). Epilepsy is a neurological condition affecting the nervous system. It is a seizure disorder, usually diagnosed after a person has had at least two seizure that are not caused by some medical conditions like alcohol withdrawal on extremely low blood sugar (www.epilepsy.com) Patton et al (1987) also define epilepsy as a seizure disorder resulting from an abnormal discharge of electrical energy in the brain. It is a discharge involving recurrent episodes of seizure activity whose prevalence ranges from 0.15 – 1% of any population (epilepsy).

Causes of epilepsy

Aetiology of epilepsy can be attributed to brain lesion, anoxia, trauma, poisoning and tension in the brain (Patton et al, 1987). Chimedza (2005) confirms that what leads to seizure can be anything that disturbs the normal patterns of neuron activity from illness to brain damage to abnormal brain development (Gearheart and Gearheart 2006; Hardman et al, 1993; Hallahan and Kauffman; 2006; www.epilepsy.com). Alcohol and child abuse, that is, use of cocaine or other recreational drugs may cause seizures during introduction of the drugs or when the offending substance is being withdrawn (Chimedza 2005). Anoxia, infection, intoxication, hemorrhaging (bleeding), trauma fever and prematurity are also known causes of epilepsy.
Classification of epileptic seizures

The seizures described in this study would be the common type prevalent among children and consequently and affecting their academic progress at school. Patton et al (1987) describe localised and non-localised seizures. The generalised seizures would exhibit discharges that are bilateral and symmetrical and these would be classified as non-localised. Accordingly, partial seizures would be classified as non-localised. These are generally termed grand mal, petit mal, myoclonic and akinetic seizures. When they occur, they lead to spontaneous loss of consciousness. Coulter (1993) refers to three types of convulsive disorder as absence seizures which are characterised by short lapses of consciousness. Tonic clonic seizures of the grand mal type convulsions are followed by loss of consciousness (Vaughn, Bos and Schumm, 1997). Epilepsy can be classified in various ways, depending on the type of seizure, the cause of the seizure or physiological charges that occur (epilepsy.com).

Effects of epilepsy on learning

Although children with epilepsy are usually of normal intelligence, some do not do well academically (epilepsy.com). When this happens it is vital to examine the cause behind such a scenario. Neurological impairment, frequent seizures or adverse affects of seizure medication can affect school performance (www.etwp.org/how.html).

Some children may experience adverse effects in their scholastic performance. They may develop learning problems related to their seizures. Factors contributing to failure at school may be classified as seizure related effects, medication related problems psychosocial factors as well as developmental disorders (Elliott, 2005).

Although overall intellectual ability in children with epilepsy is comparable to the normal childhood population, these children are at greater risk for learning problems and academic underachievement (Elliott, 2005, www.bcephilepsy.com). Children with epilepsy may experience significant challenges in the areas of attention and concentration, memory, organizational skills and academic achievement (Smith, Elliot, Lach 2002; Williams, 2002). Some children with epilepsy have global learning problems (developmental delay) caused by extensive brain abnormalities. They can also experience a variety of specific learning problems that can be attributed to a focal brain abnormality. Children have a scar in the middle part of the temporal lobe of the brain (mescal temporal sclerosis) and they may have permanent short term auditory or visual memory problems (www.bcephilepsy.com). Factors related to seizures and fatigue may contribute to transitory learning problems. These may include seizure and fatigue and confusion (post ictal state). In these cases, learning could be disturbed for minutes or hours (Elliott, 2005).

Although it may be well known that visible seizures interrupt learning, there is some evidence that epileptiform discharges occurring in the brain between seizures (interictal activity) may also disrupt learning. This is referred to as Transient Cognitive Impairment (TCI). Children
suffering from poorly controlled epilepsy suffer from fatigue resulting in transitory disruptions in learning (Elliott, Lack and Smith, 1999). Epilepsy can also lead to the slowing down of mental processing and showing of fine motor as well as visual motor speed (epilepsy.com). Learning difficulties can manifest themselves at a particular time of day corresponding to the peak levels of medication in the blood. According to Heward and Orlansky (2009), seizures can be a deterrent to the child’s progress as they can cause some learning disturbance.

**Researches on effects of epilepsy**

A chemical research was conducted at the University of Zimbabwe, Department of Pharmacy on evaluation of the impact of health worker and patient education on the care and compliance of patients with epilepsy in Zimbabwe (Adamolukun, Mielke and Ball, 1998), the results revealed that community health worker education led to a 74% increase in patient recruitment as well as a marked improvement in patient drug compliance of patients with epilepsy. The research was not related to the effects of epilepsy on children’s academic performance. It is the intention of our investigation to fill this knowledge gap.

**Methodology**

**Participants and setting**

Twenty (20) children living with epilepsy were selected from six schools within an urban environment. Purposive sampling was employed in the selection because the children were chosen on a volunteer basis and no children were coerced into the study. In addition, 10 teachers teaching these children were also purposively sampled.

**Instruments**

A structured interview was conducted on the child sample. The children were asked to indicate the problems faced in class during the pre-period and alternating of the seizures. Questions were mostly open ended to allow for freer interactions between the interviewer and interviewees. A questionnaire was administered on the teacher sample to determine teachers’ observations on the children living with epilepsy within classroom and learner settings.

**Procedure**

Permission to carry out the study was obtained from the Ministry of Education, Sports and Culture. Participants consented to participate in the study. Responses were coded and quantified.

**Data analysis**

Data was analysed quantitatively and qualitatively. Frequencies and percentages were applied to ensure accurate analysis of data. Responses from both the pupil and teacher samples were
presented in tables, wherever possible. The responses from both samples were compared to
give room for triangulation of results within data analysis.

Findings and discussion

Results from pupil sample

Regarding the effects of epileptic seizures on their education, most pupils indicated that
frequent seizures and medical investigations at the hospital resulted in frequent attendances at
school. This affected their participation in learning activities. Consequently, they logged behind
the progress of the rest of the class (Elliott, 2005, epilepsy.com; Heward and Orlansky, 2009).
Some children cited the problems of drowsiness and fatigue exacerbated by medications. Such
situations resulted in failure to complete homework and learning tasks designed to them. Tasks
were only completed and homework completed when drug effects had subsided and normalcy
restored, (www.bcepilepsy.com). (Canadian Epilepsy Alliance, 2011 Williams, 2003; Winzer,
1996).

Several indicated that drug taking (medication) affected their memory as this resulted in
memory lapses. These lapses were, however, transitory and were not day long occurrences.
During the memory lapses, the children indicated that they forgot teachers’ instructions and
could not methodically participate in the learning activities with the rest of the class. (Epilepsy
Foundation, 2003, Smith, Elliott, Lach, 2002 and Turnbull et al, 1995). It was also indicated
from the pupil responses that negative perceptions on children living with epilepsy led to low self
esteem that could impact on school performance if this persisted. The public often directed
contact with these children for fear of being hurt during convulsions. Hence, children under
attacks were little attended till they sustained injuries during attacks. Societal attitudes, fear
and expectations contributed to particular difficulties. Their self esteem, mood and behaviour
apparently changed (www.bcepilepsy.com). The stigma surrounding epilepsy in some
communities led to stress in a student’s life, resulting in poor school performance. A student’s
self esteem and confidence can also suffer due to the effects of epilepsy (Epilepsy Foundation,
2011). A continuing downward spiral of decreased school performance and diminished self
esteem can prove to be very problematic for some students living with epilepsy. When a
seizure occurs in public, many children feel embarrassed. Feelings of isolation, being different
from other children, are also common, leading a child to feelings of low self esteem and low self
worth. (Canadian Epilepsy Alliance)

Children with epilepsy also cited limited participation in school activities, for example, sport.
This also lowered their ego because they felt they were like everyone else and needed to
perform in all activities on a competitive basis with their peers (www.bcepilepsy.com, Canadian
Epilepsy Alliance).
Results from teacher sample

Teachers indicated that serious learning difficulties were observed on severe cases of epilepsy. Teachers also cited the existence of global learning problems (developmental delay) caused by extensive. Elliott (2005) confirms that these children experienced specific learning difficulties that could be attributed to a local brain abnormality. Teachers also emphasised that children with complicated to more severe forms of epilepsy associated with known or suspected brain abnormality were particularly vulnerable to learning difficulties (www.bcepilepsy.com, Austin et al 2001, Silanpaa et al, 1998).

Teachers postulated that in the case of mild epilepsy, where there was no evidence of brain abnormality, children did not exhibit learning problems. This observation in shared by Elliott 2005 who further confirmed that children with epilepsy, with no evidence of brain abnormality other than the tendency seizures, are likely to have serious learning difficulties (www.bcepilepsy.com, Canadian Epilepsy Foundation, 2011). It was also evident from the teachers’ responses that, in most cases, performance of children living with epilepsy was comparable to other children in class.

Conclusions and recommendations

The findings from both the teacher and student sample revealed that mild epilepsy, frequent medications and the subsequent effects of seizures had an impact on children’s learning. However, it was also evident that this impact was transitory and that, in most cases, performance of children living with epilepsy was comparable to that of their peers within the classroom situations. Results also indicated that epileptic seizures due to extensive brain abnormality resulted in specific learning difficulties and developmental delays.

It is incumbent upon practitioners to devise appropriate strategies to assist the learner living with epilepsy. Individual Education Programmes (IEPs) should be developed, based on the child’s strengths and weaknesses. Multidisciplinary teams could be engaged in assessment, evaluation and intervention. It is essential and vital to assess the child’s progress when he /she is medically fit with a view to developing inclusive teaching strategies to boost the child’s confidence and self esteem.

References


Canadian Epilepsy Alliance (2008).


Websites

www.efwp.org

www.epilepsy.com

www.bcepilepsy.com