

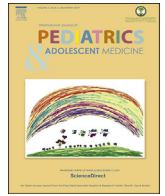
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School bullying: an increasingly recognized etiology for psychogenic non-epileptic seizures: report of two cases

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ABSTRACT

Psychogenic non-epileptic seizures (PNES) are seizure-like episodes that are not associated with changes on electroencephalogram. They are the result of a wide range of possible psychological stressors including being a victim of bullying. Currently, reports regarding PNES in bullied patients are lacking. In this case report, we describe two cases; the first is a 10-year-old boy who presented to the emergency room once for visual loss and another for inability to walk. The other is a 12-year-old boy who has experienced recurrent episodes of loss of consciousness. Based on the negative investigations for any other possible diagnosis, and upon the nature of the episodes, a diagnosis of PNES was made after a history of bullying victimization was revealed. This suggests that PNES can result from psychological distress caused by school bullying victimization in children and highlights the importance of screening for bullying in patients with PNES.

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1. Introduction

Psychogenic non-epileptic seizures (PNES) are episodes of sudden seizure-like attacks that are not associated with abnormal electrical brain activity on electroencephalogram (EEG), and cannot be explained by any other neurological diagnosis [1]. These attacks are classified in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a possible manifestation of conversion disorder [2].

The prevalence of this condition is yet to be properly investigated. Estimates based on available data concluded that the prevalence of this neuropsychiatric condition is between 2 and 33 per 100,000 [3].

Even though PNES tend to begin in early adulthood, they can present at any age. Moreover, delayed diagnosis is more likely to occur in pediatric patients [1].

A wide range of psychological stressors can result in PNES; including history of being abused, having a dysfunctional family,

and academic failure. These were especially evident in patients younger than 18 years old [1]. However, little is known about other psychological factors, including school bullying [4].

Bullying is defined as repeated hostile systemic physical or psychological attacks using power from the bullies (perpetrators) against a targeted person/group, with the intention of causing distress to the victim. This makes it difficult for the target to defend themselves. Boys are more likely than girls to experience bullying, and younger children are more likely than older children [5].

The prevalence of peer bullying varies across the world, with reports of no less than 8% of students are being bullied frequently. In Arab countries such as Lebanon, Oman, Morocco and United Arab Emirates, the prevalence of bullying ranges between 20 and 44% with Jordan achieving the highest prevalence [5].

We report two cases of PNES in victims of bullying in previously healthy children.

2. Case presentation

2.1. Case 1

A previously healthy 10-year-old boy, claimed that he was playing a video game when he suddenly had bilateral loss of vision, eye pain, inability to open his eyes, and diffuse headache that lasted

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Table 1
Summary of reported percentages of school bullying and PNES.

Author	Year of publication	Total number of PNES patients	Age range	Percentage of bullying
Irwin K et al	2000	35	6–18	8.5%
Gudmundson O	2001	17	8–16	23.5%
Duncan & Oto	2008	260	6–70	5%
Kozłowska et al	2018	60	8–18	38%

PNES: Psychogenic non-epileptic seizures.

for 2 hours. In the emergency room, all symptoms disappeared immediately upon seeing the needle for blood withdrawal. His general and neurological exams were normal. Ophthalmology evaluation, EEG and brain magnetic resonance imaging (MRI) were all normal. Few days later, he presented again to the emergency room with inability to move his lower limbs and he regained the ability to walk immediately in the ER.

The child had uneventful antenatal and birth history. His development was normal for age. His parents are not consanguineous and there was no family history of epilepsy or any other neurological disorder.

Suspecting a psychological etiology, a detailed social history was taken from both the parents and the child; the child admitted that he does not want to go to school as he had been bullied both physically and verbally.

The parents were advised to approach the school administration to develop a strategy for bullying prevention.

2.2. Case 2

A previously healthy 12-year-old boy presented to our child neurology clinic due to daily episodes of loss of consciousness for the last one month. These episodes only happen when the child is in school. He describes feeling of hotness for a few seconds followed by dizziness and loss of consciousness for a few minutes. All the episodes occurred while he was sitting in his desk and he never fell or injured himself.

He had uneventful antenatal and birth history, normal developmental milestones and no family history of epilepsy or any other neurological disease.

His general and neurological exams were normal. His EEG and brain MRI were also normal. A video tape filmed at school showed him leaning his head on the desk with his eyes closed, then moving and adjusting his body when held by the teacher and school nurse to a wheel chair. The patient had previously received a diagnosis of epilepsy and was already on two different anti-epileptic medications. We concluded that he has PNES and after a detailed history, the child disclosed that he did not want to go to school because of the verbal and physical bullying he experienced.

The parents decided to move the kid from his school to another.

3. Discussion

We report here two boys who presented with PNES and the underlying etiology was found to be school bullying.

The mean age of onset of PNES in the pediatric population is 13 years [1]. However, children as young as 3 years could be affected [2]. PNES in children manifests with a number of different possible clinical presentations [3]. In our cases, the first presented with visual loss and inability to walk while the second manifested with recurrent transient loss of consciousness.

In the literature, children are more likely when compared to adults and adolescents to present with dialeptic PNES and unresponsiveness. Motor signs, on the other hand, are more likely to present in older children than the younger. When present, motor

signs may involve the upper or lower limbs. Tremors are the most frequent of motor signs, pelvic thrusting however is only rarely seen in children [3]. Previous reports have shown that bullied patients presented with higher rates of functional neurological symptoms (including non-epileptic seizures, blindness or limb paralysis) than non-bullied patients, and were more likely to receive a diagnosis of conversion disorder [6].

The proposed etiology factors of PNES include predisposing genetic factors and early life experiences combined with precipitating and perpetuating factors [2]. In children, co-morbidities such as epilepsy and learning problems, and adverse life events such as domestic or community violence, psychological abuse, and serious personal illness, surgery or medical procedures also play a role in the development of PNES. In contrary to adults, however, it is noted that physical or sexual abuse and family loss were not associated with PNES in the young [7].

Psychological abuse; including bullying, is reported in higher rates in patients with PNES when compared with their siblings of the same age group (8–18) and living with the same parents [7]. In addition, episodes of PNES tend to be preceded and possibly triggered by psychological distress in almost half of patients with PNES [8].

Being reported (with other school difficulties) as the most common precipitating or perpetuating factors for PNES in children [2], school bullying should be considered as a very important etiological factor for PNES in children.

Undoubtedly, bullying at school is becoming a prevalent serious problem [5]. A history of bullying is more likely to be present with earlier age of onset of PNES [9]. Between 8.5 and 38% of pediatric patients with PNES report bullying [8,10,11] with the higher percentages being reported in the more recent studies (Table 1). This indicates that bullying is an increasingly recognized precipitating factor for PNES.

Interventional strategies to protect the child from bullying such as change of schools has resulted in cessation of attacks [11]. In our cases, the patients and their parents received counseling to be able to deal with the situation.

4. Conclusion

Assessment of children presenting with psychogenic non-epileptic seizures must include careful consideration of the possibility of school bullying as a contributing factor.

Conflict of interest

All authors declare no conflict of interest.

References

- [1] Asadi-Pooya AA, Emami M. Juvenile and adult-onset psychogenic non-epileptic seizures. *Clin Neurol Neurosurg* 2013;115(9):1697–700. <https://doi.org/10.1016/j.clineuro.2013.03.009>.
- [2] Kanemoto K, LaFrance WC, Duncan R, Gigineishvili D, Park S-P, Tadokoro Y, et al. PNES around the world: where we are now and how we can close the diagnosis and treatment gaps—an ILAE PNES Task Force report. *Epilepsia Open*

- 2017;2(3):307–16. <https://doi.org/10.1002/epi4.12060>.
- [3] Szabó L, Siegler Z, Zubek L, Liptai Z, Kórhegyi I, Bánsági B, Fogarasi A. A detailed semiologic analysis of childhood psychogenic nonepileptic seizures. *Epilepsia* 2012;53(3):565–70. <https://doi.org/10.1111/j.1528-1167.2012.03404.x>.
- [4] Valente K, Alessi R. Major stressful life events in pediatric and adult patients with psychogenic nonepileptic seizures. *Epilepsy Curr* 2014;14(1):94.
- [5] Shaheen AM, Hammad S, Haourani EM, Nassar OS. Factors affecting Jordanian school adolescents' experience of being bullied. *J Pediatr Nurs* 2018;38:e66–71. <https://doi.org/10.1016/j.pedn.2017.09.003>.
- [6] Ibeziako P, Choi C, Randall E, Bujoreanu S. Bullying victimization in medically hospitalized patients with somatic symptom and related disorders: prevalence and associated factors. *Hosp Pediatr* 2016;6(5):290–6. <https://doi.org/10.1542/hpeds.2015-0207>.
- [7] Plioplys S, Doss J, Siddarth P, Bursch B, Falcone T, Forgey M, et al. A multisite controlled study of risk factors in pediatric psychogenic nonepileptic seizures. *Epilepsia* 2014;55(11):1739–47. <https://doi.org/10.1111/epi.12773>.
- [8] Kozłowska K, Chudleigh C, Cruz C, Lim M, McClure G, Savage B, et al. Psychogenic non-epileptic seizures in children and adolescents: Part I - Diagnostic formulations. *Clin Child Psychol Psychiatry* 2018;23(1):140–59. <https://doi.org/10.1177/1359104517732118>.
- [9] Duncan R, Oto M. Predictors of antecedent factors in psychogenic nonepileptic attacks. *Multivariate analysis. Neurology* 2008;71(13):1000–5.
- [10] Gudmundsson O. Outcome of pseudoseizures in children and adolescents : a 6-year symptom survival analysis. 2001. p. 547–51. 1980.
- [11] Irwin K, Edwards M, Robinson R. Psychogenic non-epileptic seizures: management and prognosis. *Arch Dis Child* 2000;82. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1718361/pdf/v082p00474.pdf>.