

Bullying-induced dyspnoea in children: a case series

Ian Sinha¹, Claire Hepworth¹, Sujata De², Sunil Sharma², Ian Street², Phil Lawrence², and Thomas Hampton³

¹Alder Hey Children's Hospital

²Alder Hey Children's NHS Foundation Trust

³University of Liverpool

March 19, 2021

Bullying-induced dyspnoea in children: a case series

Ian P. Sinha ^{1,2}

Claire Hepworth ¹

Sujata De ¹

Sunil D. Sharma ¹

Ian Street ¹

Philip J. Lawrence ¹

Thomas Hampton* ^{1,2}

1 Alder Hey Children's Hospital, Liverpool, UK

2 Division of Child Health, University of Liverpool, UK

*Corresponding author (Thomas.hampton@nhs.net)

Dear Editor

We conduct a multidisciplinary complex breathlessness clinic for children¹. We conduct spirometry before and after a treadmill exercise test (until the child is breathless), continuous nasal laryngoscopy, pulse oximetry, and calculation of maximal oxygen consumption (VO₂max). Here we describe a series of children who presented with troublesome breathlessness that appeared to be caused, or exacerbated by, being bullied.

Case 1 (14 year old white female): She was a highly competitive sportsperson, but was recently unable to train or compete. She described her breathlessness as 'air getting stuck in her throat', and had a non-specific cough. She had frequent admissions to hospital, treated as presumed asthma attacks. The referring clinician felt her asthma was of insufficient severity to cause her problems. She had no documented obstruction on spirometry in clinic, nor and Fractional Exhaled Nitric Oxide (FeNO) was normal. In clinic she managed a few minutes of running, before suddenly stopping. There was no evidence of exercise-induced bronchoconstriction or exercise-induced laryngeal obstruction (EILO), but she had features of dysfunctional breathing (DB). On questioning she described feeling bullied by parents of other children in her sports team, whom she described as overcritical and disparaging. She was taught breathing exercise and referred to psychological services. Her symptoms and asthma attacks improved, and she recommenced competitive sports.

Case 2 (10 year old white female): She had a chronic wet cough since the age of six months. She underwent flexible bronchoscopy which identified mild tracheobronchomalacia. She recently described breathlessness

on mild exertion that was disproportionate to the degree of tracheobronchomalacia. Physiological testing never demonstrated airways obstruction, or raised FeNO. In clinic she started running but stopped within minutes, with no physiological evidence of increased work of breathing or bronchoconstriction. Laryngoscopy was normal. On questioning she described that she was bullied at school. Specifically, she described that children would not sit near her because of her cough. She was followed up in respiratory physiotherapy clinic, and her symptoms and exercise tolerance improved.

Case 3 (13 year old white female): She had no medical diagnoses at the time of testing, but previously had tonsillectomy because of recurrent tonsillitis. She described breathlessness on exertion. She stopped running very suddenly, as soon as she felt breathless on the treadmill. The breathlessness started as discomfort underneath her ribs and in her throat. Spirometry and laryngoscopy were normal before and after exercise. She had apical breathing and hyperventilation at rest, suggestive of dysfunctional breathing. She described being bullied at school. She did not attend follow up sessions with physiotherapy and was discharged from the service.

Case 4 (9 year old black male): He was treated for mild asthma which had, until recently, been well controlled. He had become withdrawn, and was not enjoying playing sports despite previously being very athletic. On questioning he described suffering significant and long-standing racial bullying at school. He discussed this with the teachers but his symptoms seemed to develop after he felt like his complaints were not taken seriously. His breathlessness and exercise tolerance improved temporarily after enrolling in a community sports program for children with asthma ², and he was much better after moving school.

Across these cases, we identified common themes:

- The character and severity of the breathlessness was out of keeping with their underlying diagnoses, and was intensely unpleasant. All children described non-specific and variable symptoms of pain in their abdomen, joints, or chest.
- They appeared withdrawn, unhappy, and lacking in self-confidence. They had slouched posture, and spoke quietly.
- They had very sudden and surprising termination of exercise after starting to feel breathless, with no significant physiological evidence of increased work of breathing – we noticed a stark difference compared with other children who saw breathlessness as a challenge and would continue to run long after showing signs of tachypnoea and tachycardia.
- In all cases, it was the healthcare professionals who raised the subject of bullying. The children had felt that they had raised concerns about being bullied but felt these were dismissed.
- When children engaged with physiotherapy, we noticed improvements. The children were relieved when we did not find significant anatomical or physiological diagnoses, and all agreed their breathlessness was caused by bullying.

We feel that these patterns relate to a phenotype of childhood dyspnoea specifically related to bullying. Anxiety is associated with tachypnoea, but in our experience the pattern of breathing in these children was different: their shallow, rapid breathing at rest was felt to be related to a slouched posture causing restriction, and all had a sudden cessation to exercise after very minimal exertion. We suggest these are manifestations, specifically, of low self-esteem. It was notable that they described the breathlessness as intensely uncomfortable. The neural pathways involved in driving respiration, and sensing breathlessness, are complex, and we postulate that they are affected by low self-esteem.

This, to our knowledge, is the first description of bullying-induced dyspnoea in children, as a separate phenomenon to anxiety-related hyperventilation. There may be crossover with other psychological, physiological and anatomical problems, and further research is warranted. Having asthma is a risk factor for being bullied³, and bullying is associated with worse asthma control⁴. A recent review has also identified possible associations between bullying and the development of childhood asthma⁵. It is important ask about bullying when taking a history from a child with unexplained or disproportionate breathlessness.

References

1. Hepworth C, De S, Street I, Lawrence P, Hampton T, Sinha I. The impact of a multidisciplinary clinic on children with complex breathlessness. *European Respiratory Journal* 2019 [accessed 2020 Oct 15];54(suppl 63). http://erj.ersjournals.com/content/54/suppl_63/PA5259
2. Hepworth C, Lilley A, Gait L, Mingaud N, Hannigan H, Fathers J, Wheeler V, Sinha I. A multidisciplinary community-based complex intervention on children with asthma. *European Respiratory Journal* 2019;54:PA 1181.
3. Gibson-Young L, Martinasek MP, Clutter M, Forrest J. Are students with asthma at increased risk for being a victim of bullying in school or cyberspace? Findings from the 2011 Florida youth risk behavior survey. *J Sch Health* 2014;84(7):429–434.
4. Carroll W, Wildhaber J, Brand P. Bullying in children with asthma - What factors are associated with increased risk? *European Respiratory Journal* 2012 [accessed 2020 Oct 3];40(Suppl 56). http://erj.ersjournals.com/content/40/Suppl_56/P1092
5. Charles R, Gilchrist FJ, Carroll W. Is there an association between having asthma and being bullied? *Archives of Disease in Childhood* 2020;105(9):903–905.

Competing interests and funding statement

TH is supported by a Wellcome Trust grant (203919/A/16/Z) unrelated to this research but no authors have any other potential or actual competing interests, financial or otherwise.