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Comparing participation in activities among children with disabilities

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ABSTRACT

Introduction: Compared to typically developing peers, children with disabilities due to neurodevelopmental disorders and disabilities (NDD/D) and to chronic medical conditions (CMC) have reduced participation in activities. The extent to which these two groups of children have different levels of participation is unknown and was examined in this study.
Methods: The 2006 Participation and Activity Limitation Survey children dataset collected by Statistics Canada was analyzed. Children with disabilities due to NDD/D and CMC were identified following review and classification of all ICD-10 codes in the dataset by two pediatricians. Dependent variables were parent-reported child participation in supervised and unsupervised physical activities within and outside of school, educational activities, and social/recreational activities. Logistic regression analyses, with relevant covariates (child and familial characteristics), were used to analyze the data.
Results: Children with NDD/D were significantly more likely to take part in supervised and unsupervised physical activity at school than children with CMC ($p < 0.001$). A similar trend was observed for participation in school outings, although the effect was not significant at $p < 0.01$. Finally, a trend in the opposite direction was observed for educational activities, as children with NDD/D were less likely to take part in these activities than children with CMC.
Discussion: Finding decreased participation among children with CMC compared with NDD/D was not predicted a priori but has potential implications for their mental and physical health.
Conclusions: Gaining a better understanding of the barriers to participation in physical activity may contribute to improving the overall health status of children with CMC.

1. Introduction

In Canada the prevalence of childhood disability is estimated at 3.7%, affecting about 5.3 million children 0–14 years of age (Statistics Canada, 2007a). The cost associated with supporting a child with a disability is significant as many of these children require additional health, educational, and/or social services (Burton & Phipps, 2009; Newacheck, Inkelas, & Kim, 2004; World Health Organization, 2011). Although children with disabilities account for a relatively small proportion of the

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total population, they utilize more services than all children without disabilities (Neff & Anderson, 1995; Newacheck & Kim, 2005). Ensuring that children with disabilities are well integrated into society is essential for the emotional and physical well-being of these children but can also serve as a strategy to curtail health care cost.

The International Classification of Functioning, Disability and Health (ICF) defines participation as "involvement in life situations" and for children it involves participating in educational, social, recreational, and physical activities (World Health Organization, 2007). Participation in a broad range of activities which include artistic, creative, cultural, sports, educational, play, and social activities is thought to be a key indicator of a child's health, irrespective of their disabilities. Specifically, participation in activities has been associated with increased skills (e.g., physical activity competency), better academic performance, improved social interactions (e.g., having more friends), better mental health (e.g., decreased depression and anxiety), and improved physical health (Barnett, 2011; Forsyth & Jarvis, 2002; Larson & Verma, 1999). Children with disabilities may be at greater risk for reduced participation in activities (e.g., both frequency and subjective experience of participation), as a result they may less likely to derive the benefits associated with participation (Caldwell & Gilbert, 1990; Johnson, 2009; Kiluk, Weden, & Culotta, 2009; Larson & Verma, 1999; Lyons, 1993; Murphy, Carbone, & A, 2008; Simeonsson, Carlson, Huntington, McMillen, & Brent, 2001; Young, Rice, Dixon-Woods, Colver, & Parkinson, 2007). For example, Johnson and colleagues' (Johnson, 2009) systematic review indicates that participation in physical activity has the following health benefits for children with developmental disabilities: improved cardiovascular fitness, gross motor function, and overall well-being. As participation in age-appropriate educational, social, recreational, and physical activities is important for the normal development of a child (Barnett, 2011), it is important to examine the extent to which children with disabilities are participating in a wide-range of activities.

Children with disabilities may summarily be divided into those with neurologically based disorders resulting in disability, referred herein as NDD/D, and those with disability due to other kinds of chronic medical conditions, referred herein as CMC (Miller, Mâsse, Shen, Schiariti, & Roxborough, in press). Studies of participation in activities among children with NDD/D have primarily focused on children with cerebral palsy, physical disabilities, and complex communication needs (Brown & Gordon, 1987; Clarke et al., 2011; Fauconnier et al., 2009; Hammal, Jarvis, & Colver, 2004; Imms, Reilly, Carlin, & Dodd, 2008; Imms, 2008; Law & Dunn, 1993; Law et al., 2006; Raghavendra, Virgo, Olsson, Connell, & Lane, 2011). Collectively, these studies suggest that patterns of participation differ between children with NDD/D and their typically developing peers in the following ways: the range of activities that children with NDD/D participate in is more limited; their overall participation in activities outside of the home is less frequent, as their activities occur more often at home or alone; they have fewer social interactions; and they participate more often in sedentary activities (e.g., music lessons, TV watching, computer screen time, and reading).

Children with NDD/D therefore encompass a subset of children with disabilities who are at risk for reduced participation in activities. Children with disabilities due to CMC may also have reduced participation in educational, physical, and social/recreational activities compared to their typically developing peers; however, only a few studies have examined this possibility (Eijkemans et al., 2008; Glazebrook et al., 2006; Keats, Culos-Reed, Courneya, & McBride, 2006), and the evidence is inconclusive. For example, there is evidence that adolescent cancer survivors are less engaged in moderate and vigorous physical activity during the active phase of treatment as well as when treatment is completed compared to their pre-diagnosis levels of activity (Keats et al., 2006). In contrast, studies that have examined levels of participation among children with asthma have been inconsistent, with some studies reporting no evidence of decrease participation (Eijkemans et al., 2008; Jones, Merkle, Fulton, Wheeler, & Mannino, 2006) whereas another study found lower levels of physical activity compared to their typically-developing peers (Glazebrook et al., 2006). Overall, levels of participation in a wide-range of activities have received little attention for children with CMC. Furthermore, the extent to which children with NDD/D and CMC differ in their level of participation in activities remains largely unknown. Children with NDD/D have been recognized as an important target group for rehabilitative interventions which has a key goal to enable children to fully participate in activities (King et al., 2002). However, within the larger groups of children with disabilities, children with CMC have received less attention in terms of understanding their participation in activities. It is important to examine participation in activities among all children with disabilities to ensure they derive the emotional, mental, and physical health benefits associated with positive participation (Murphy et al., 2008). To date, much of the research has focused on a few specific groups of children with NDD/D, with little attention to children with CMC, and no studies have examined differences in participation among these two groups in a large sample representative of the population of children with disabilities. The purpose of this study was to provide a participation profile for children with disabilities in Canada and to compare whether children with NDD/D had a similar level of participation to children with CMC.

2. Methods

2.1. Study design

The 2006 Participation and Activity Limitation Survey (PALS) children dataset was used to address the research questions. The PALS is a post-censal survey collected by Statistics Canada – a Federal governmental agency responsible for providing national statistics for Canada, collecting Census data, and administering other national surveys. Ethical approval for the study was obtained from the University of British Columbia's Research Ethics Board.