Short Report:

Physical Activity among children with and without Disabilities and Chronic Conditions: A case-control analysis

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Introduction

The HBSC is a cross-national research study conducted in collaboration with the World Health Organisation (WHO) Regional Office for Europe and runs on a four-year cycle. In 2018, Ireland participated for the sixth time in the HBSC study (www.nuigalway.ie/hbsc). The overall aims of the HBSC study are to gain new insight into, and increase our understanding of young people's health and well-being, health behaviours and their social context. HBSC collects data on key indicators of health, health attitudes, and health behaviours, as well as the context of health for young people. The study is a school-based survey with information collected from students through self-completion questionnaires in classrooms. HBSC Ireland 2018 was funded by the Department of Health. Further information on HBSC Ireland can be found at www.nuigalway.ie/hbsc or on HBSC international at www.hbsc.org.

The most recent HBSC Ireland study was conducted in 2018, and included 15,557 school children from 3rd class in primary school to 5th year in post-primary school. Collectively, 255 primary and post-primary schools across Ireland participated in this study. In this short report, data from 13,169 children aged 10-17 years old are analysed. The methods employed comply with the International HBSC protocol and are detailed in the national report from the 2018 survey (Költő et al., 2020).

Focus of this report

This report presents the frequency of physical activity among children with disability or chronic conditions and their matched peers aged 10-17 years. Children who reported having a disability or chronic condition were matched to their peers by age, gender and social class, in order to ensure that differences in these socio-demographic characteristics did not confound the comparisons. An iterative case-control matching technique was applied. First, we tried to identify the non-minority matched peer within the same school class. If there was no suitable match, we searched for a matched control in the same school. If no match was identified within the school, we extended the search to the same county. If no match was found within the county, we continued the search within the respective geographical region. If no match was found within the same region, the case was deemed unmatched.

The analyses presented in this report were based on the following areas of the HBSC Ireland questionnaire.

- Disability or chronic condition. Questionnaire item: 'Do you have a long-term illness, disability, or medical condition (like diabetes, allergy or cerebral palsy) that has been diagnosed by a doctor?', with the response options 'yes' and 'no'.
- Moderate and vigorous physical activity (MVPA). Questionnaire item: 'Over the past 7 days, on how many days were you physically active for more than a total of at least 60 minutes per day? Please add up all the time you spend in physical activity each day', with the response options '0 days', '1', '2', '3', '4', '5', '6', and '7'.
- Vigorous physical activity (VPA). Questionnaire item: 'OUTSIDE SCHOOL HOURS: How often do you exercise in your free time so much that you get out of breath or sweat?', with the response options 'every day', '4 to 6 times per week', '2 to 3 times per week', 'once a week', 'once a month', 'less than once a month', 'never'.
- Mode of transport to school. Questionnaire item: 'On a typical day is the MAIN part of your journey TO school made by ….?', with the response options 'walking', 'bicycle', 'bus, train, tram (Luas) or boat', 'car, motorcycle or moped', and 'other means'.

- Mode of transport from school. Questionnaire item: 'On a typical day is the MAIN part of your journey FROM school made by ….?', with the response options 'walking', 'bicycle', 'bus, train, tram (Luas) or boat', 'car, motorcycle or moped', and 'other means'.

The findings are presented below in a series of tables. First, the frequency of disability or chronic conditions (D/CC) is presented, in the overall sample and within four age groups: 10-11 years, 12-13 years, 14-15 years, 16-17 years (**Table 1**). In the following tables, the responses from children with disability or chronic conditions (D/CC) are compared to their matched pairs within the four age groups. **Table 2** presents the number and percentage who reported 60 minutes MVPA daily, or seven days per week. **Table 3** presents the number and percentage who reported vigorous physical activity on four days per week or more frequently. **Table 4** presents the number and percentage who reported that on a typical day the main part of their travel to school was by walking or cycling. **Table 5** presents the number and percentage who reported that on a typical day the main part of their travel from school was by walking or cycling.

Chi-square tests were used to compare findings presented in **Tables 1–5**. The threshold of statistical significance was set at $p < .05$. To demonstrate the magnitude of the effects, we calculated Cramér's *V* effect sizes. Following Cohen's (1988) guidelines, effects $V \leq .10$ were interpreted as negligible, *V* between .10 and .29 as small, *V* between .30 and .49 as medium and $V \geq .50$ as large.

Findings

Table 1 presents the rates of D/CC in the overall sample and across age groups. Overall, 21.5% of the children reported living with a D/CC; the Chi-square test indicated a significant association between the prevalence of D/CC and age group, but there was no substantial difference across the different ages (20.5–24.0%). **Tables 2** and **3** demonstrate reducing rates of both MPVA and VPA as age increases among both children with disabilities and chronic conditions and their matched peers. No statistically significant differences were observed between children with disabilities and chronic conditions and their matched peers in any age group. **Tables 4** and **5** demonstrate consistent rates of active transport both to

and from school as age increases among both children with disabilities and chronic conditions and their matched peers. No statistically significant differences were observed between children with disabilities and chronic conditions and their matched peers in any age group.

Table 1. Number and percentage of children with a disability or chronic condition (D/CC)

	Has D/CC % (n)	No D/CC % (n)
Aged 10-11	21.3 (766)	78.7 (2829)
Aged 12-13	20.5 (803)	79.5 (3117)
Aged 14-15	21.4 (751)	78.6 (2757)
Aged 16-17	24.0 (515)	76.0 (1631)
Total sample	21.5 (2835)	78.5 (10334)
p	.015	
V	.028	

Table 2. Number and percentage of children with a disability or chronic condition (D/CC) vs. their matched peers, who reported 60 minutes MVPA daily, by age group.

	10-11 years		12-13 years		14-15 years		16-17 years	
Group	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**
60 mins MVPA daily	38.2 (132)	42.2 (146)	25.7 (168)	27.5 (180)	12.5 (67)	16.0 (86)	13.4 (50)	11.8 (44)
60 mins MVPA <daily	61.8 (214)	57.8 (200)	74.3 (486)	72.5 (474)	87.5 (471)	84.0 (452)	86.6 (323)	88.2 (329)
p	.278		.453		.097		.508	
V	.041		.021		.051		.024	

Table 3. Number and percentage of children with a disability or chronic condition (D/CC) vs. their matched peers, who reported vigorous exercise four or more times per week, by age group.

	10-11 years		12-13 years		14-15 years		16-17 years	
Group	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**
VPA >4 times a week	66.9 (485)	69.8 (506)	55.4 (326)	52.9 (311)	39.6 (186)	42.8 (201)	34.4 (121)	34.1 (120)
VPA <4 times a week	33.1 (240)	30.2 (219)	44.6 (262)	47.1 (277)	60.4 (284)	57.2 (269)	65.6 (231)	65.9 (232)
p	.236		.380		.320		.937	
V	.031		.026		.032		.003	

Table 4. Number and percentage of children with a disability or chronic condition (D/CC) vs. their matched peers, who reported active transport to school, by age group.

	10-11 years		12-13 years		14-15 years		16-17 years	
Group	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**
Active travel to school	27.3 (198)	27.9 (202)	26.0 (173)	25.7 (171)	23.2 (125)	26.2 (141)	27.2 (104)	25.9 (99)
Passive travel to school	33.1 (526)	72.1 (522)	74.0 (492)	74.3 (494)	76.8 (414)	73.8 (398)	72.8 (278)	74.1 (283)
p	.814		.900		.258		.682	
V	.006		.003		.034		.015	

Table 5. Number and percentage of children with a disability or chronic condition (D/CC) vs. their matched peers, who reported active transport home from school, by age group.

	10-11 years		12-13 years		14-15 years		16-17 years	
Group	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**	**D/CC % (n)**	**Matched % (n)**
Active travel home	30.0 (216)	31.1 (224)	28.5 (188)	30.9 (204)	27.5 (148)	31.4 (169)	33.0 (125)	30.9 (117)
Passive travel home	70.0 (504)	68.9 (496)	71.5 (472)	69.1 (456)	72.5 (391)	68.6 (370)	67.0 (254)	69.1 (262)
p	.647		.335		.160		.533	
V	.012		.027		.043		.023	

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Further information on HBSC Ireland is available at www.nuigalway.ie/hbsc.

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