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Child functioning and social participation in Canada using the Washington Group/ United Nations Children's Fund Child Functioning Module

Note by Statistics Canada*

Abstract

National data collection and rigorous and consistent measurement are important for reporting and monitoring indicators for child functioning and disability. The objectives of the current paper are to: 1) provide descriptions of Canadian children with and without functional difficulties based on the Child Functioning Module (CFM) 2) examine associations with social participation in a variety of contexts including childcare, school, and organized sports and clubs, and 3) examine the use of the CFM as a means to disaggregate SDG indicators. Results suggested that an estimated 700,000 Canadian children aged 2-17 years were identified with functional difficulties (4% of children aged 2 to 4 years, 14% of children aged 5 to 11 years, and 12% of children aged 12 to 17 years). Children aged 2 to 17 with functional difficulties were more likely to reside in low-income households, experience food insecurity, and report poorer general and mental health than children without functional difficulties. Children aged 2 to 4 years with functional difficulties were less likely to attend childcare, although this association did not remain after accounting for sociodemographic characteristics associated with child care use and disability. Children aged 5 to 17 years with functional difficulties were less likely to have attended school 5 days per week and were less likely to have participated in social groups like organized sports and clubs. These findings demonstrate the utility of the CFM tool to report on child functional difficulties in Canada, including implications on social participation, as well as being used as a means for disaggregating for SDG reporting for international comparisons.

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I.   Introduction

1. Several international frameworks are in place to support healthy child and youth development. The United Nations Convention on the Rights of the Child (UNCRC), the Convention on the Rights of Persons with Disabilities (UNCRPD), and the Sustainable Development Goals (SDGs) are just a few. Each is associated with agreement on priorities necessitating standardization in terminology and definitions. National data collection and rigorous and consistent measurement are important for reporting and monitoring on meeting these priorities. However, many countries have information needs beyond those that can be fulfilled by internationally comparable reporting measures in a single survey. For example, in Canada, at the national level, collection of child health information includes health outcomes as well as social determinants of health including health behaviours and socio-economic conditions.

2. Reflecting a move from concepts relying on a medical model of disability (e.g., disease) to a social model focusing on unaccommodating physical environments (WHO, 2002), assessments of child health and disability vary including diagnosed chronic conditions, functional difficulties (Madans et al., 2011), participation restrictions (Robine et al., 2003), as well as health utility measures (HUI, Furlong et al., 2001). The International Classification of Functioning, Disability, and Health (ICF) states that neither medical nor social model alone is adequate. Disability can occur as an impairment in body function or structure (e.g., problems with using the muscles), a limitation in activity (e.g., inability to see), or a restriction in participation (e.g., exclusion from participation in childcare, schooling, or other age-appropriate activities such as sports and clubs). A better model is a biopsychosocial model, one that integrates both medical and social approaches to provide a coherent perspective on the complex notion of disability (WHO, 2002). However, measurement of child disability remains challenging given the necessary but complicated integration of both medical and social models of disability and the fact that child measures are often adapted from adult measures (e.g., Washington Group, Global Activity Limitation Indicator (GALI) and HUI).

3. In Canada, health and education fall under provincial jurisdiction that often yields data that are not comparable. As such, national reporting is largely based on survey data of which there are numerous national as well as sub-national data sources. For example, the federal (national) government has supported national disability surveys (Participation and Activity Limitation Survey [PALS], Canadian Survey on Disability [CSD]), school-age surveys (Health Behaviour in School-aged Children Study [HBSC]), and child health surveys (National Longitudinal Survey of Children and Youth [NLSCY], Canadian Health Survey on Children and Youth [CHSCY]), albeit on an irregular collection schedule and each with varying definitions of child disability (Kohen et al., 2007; Arim et al., 2015). For example, the CSD includes the Disability Screening Questions (DSQ, Pianosi et al., 2023) that were developed for a population aged 15 years and older and therefore may not be suitable for younger children. Interestingly, several provinces have subnational data, including provincially linked health data that are also useful to inform child disability (hospitalization data, diagnostic information, physician claims, prescription data) albeit each may choose a different approach when it comes to defining child disability. For example, provincial administrative data have been used to conceptualize childhood "medical complexity" (Cohen et al., 2011, Arim et al., 2015) and neurodevelopmental disorders and disabilities (Arim et al., 2017). These various data opportunities both on the survey and administrative data fronts (including linked data) yield rich information that goes beyond prevalence and descriptive reporting and allows for insightful analytical work. For example, studies using linked administrative data have examined the health of caregivers of children with health problems (Lach et al., 2009; Brehaut

et al., 2019), health service use (Chiu et al., 2020; Marquis et al., 2023; Carriere et al., 2023; Carriere et al., 2018), and medication use (Lunghi et al., 2022) among children and youth as well as household food insecurity (Anderson et al., 2023) and educational outcomes (Brownell et al., 2015).

4. Survey, administrative, and linked data also support the production of statistics to monitor international indicators and targets such as the SDGs on a wide range of issues, including poverty, hunger, health and well-being, and quality education. Canada, along with other UN Member States, adopted the 2030 Agenda for Sustainable Development in 2015. The framework covers 17 Sustainable Development Goals (SDGs) that relate to social, economic, and environmental dimensions of sustainable development. The Washington Group on Disability Statistics (WG) argues that in order to ensure that children with disabilities are not excluded from the global development agenda "sufficient data must be collected so that all person-level SDG indicators can be disaggregated by disability status" (2020, para 5).

5. Given this context, the Child Functioning Module (CFM) was developed, validated, and standardized by the United Nations Children's Fund (UNICEF) and the Washington Group on Disability Statistics (WG), in consultation with an international group of experts to provide an internationally comparable measure of children's functioning. Based on the International Classification of Functioning, Disability, and Health (ICF) framework (WHO, 2002), the CFM aims to identify children *at risk* of participation restrictions in unaccommodating environments (UNICEF, 2021). The CFM is not in and of itself a measure of disability because it does not directly measure the interactions between health conditions and contextual factors (WHO, 2002) as depicted in the ICF. Despite this limitation, the CFM is a useful tool to assess difficulties in child functioning as reported by parents or caregivers in the following functional attributes: seeing, hearing, walking, communication, controlling behaviour and learning (2-17 years); motor skills and playing (2-4 years); and self-care, remembering, concentrating, accepting change, making friends, and affect (5-17 years). On each of these attributes, difficulty is assessed on a 4-point scale: no difficulty, some difficulty, a lot of difficulty, and cannot do at all (with some exceptions). A child who is reported to have "a lot of difficulty" or "cannot do it at all" on at least one of these attributes is considered to be a child *at greater risk* than other children of the same age of having a participation restriction in an unaccommodating environment (Mont, 2019; Washington Group, n.d.). Those who report "no difficulty" or "some difficulty" in all attributes are not counted as children at risk. Despite various studies that have been conducted to ensure the validity of the CFM through cognitive and field testing (see Cappa et al., 2018), relatively little is known about its use in the Canadian context.

6. With an interest to explore the use of the WG/UNICEF CFM and to contribute to cross-nationally comparable estimates of the number and proportion of children with functional difficulties, this paper presents Canadian results for the CFM collected from the 2019 CHSCY, a Canadian cross-sectional national child health survey, to: 1) identify the number of children with and without functional difficulties, including a description of socio-economic correlates, 2) examine associations with social participation in a variety of contexts including child care, school, and organized sports and clubs, and 3) examine the use of the CFM as means to disaggregate SDG indicators. The age groups included in each of these sections vary based on the appropriateness of the outcome (i.e., younger children for childcare, older children for school and organized activities).

II.   Identifying children with functional difficulties in Canada using the CFM

7.   The CHSCY provides data to identify children with functional difficulties within a Canadian sample. The 2019 CHSCY was a national, cross-sectional survey to collect data on issues impacting the physical and mental health of Canadian children and youth, covering the population aged 1 to 17 years living in Canada's ten provinces and three territories. Children and youth living on First Nations reserves and in other Indigenous settlements in the provinces, children and youth living in foster homes, and the institutionalized population were excluded from the survey's coverage. The questionnaire was administered to the person most knowledgeable (PMK) about the selected child. Children aged 12-17 years also completed a self-report questionnaire, which included questions on their school attendance, participation in organized clubs and sports, and self-perceived health. The PMK was a birth parent for 96% of the sample, hereafter referred to as a parent. Of parents, 86% identified as female. Respondents were given the opportunity to respond via electronic questionnaire, and if not completed, were contacted for a telephone interview. The overall response rate for the CHSCY was 52%.

8.   Results from the CFM module suggested that an estimated 700,000 Canadian children aged 2-17 years (4% of children aged 2 to 4 years, 14% of children aged 5 to 11 years, and 12% of children aged 12 to 17 years) were identified with functional difficulties. As shown in Figure 1, less than 1% of children had difficulty in each of the following functional domains: seeing, hearing, fine motor (aged 2 to 4 only), playing (aged 2 to 4 only) and self-care (aged 5-17 only). The most frequently identified functional difficulties for each age group were communication among children aged 2-4 (3%), accepting change among children aged 5 to 11 (5%), and anxiety among children aged 12-17 (5%).

Figure 1

Functional difficulties based on the CFM among Canadian children, by domain and age group
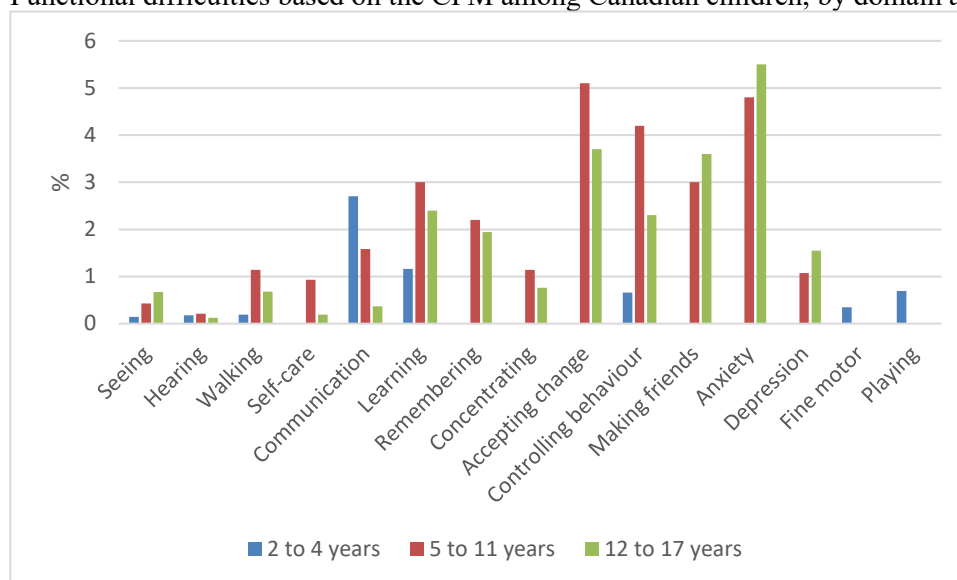
Source: Canadian Health Survey of Children and Youth, 2019, Statistics Canada

9. Child and family sociodemographic characteristics were associated with child functioning in the expected directions. As presented in Table 1, children aged 2-17 years identified with functional difficulties were less likely to be a girl[1] and less likely to be between the ages of 2 and 4 years than children without functional difficulties. Children with functional difficulties also differed from their counterparts in that they were more likely to be living with a lone parent, to have parents who were not employed, and to have a parent whose highest level of education was high school or less.

Table 1

Child and family sociodemographic characteristics of Canadian children aged 2-17 years with and without functional difficulties based on the CFM

Child and family sociodemographic characteristics		Children with functional difficulties			Children without functional difficulties		
		%	95% CI		%	95% CI	
Gender+	Boy+	57.6	55.7	59.5	50.4	50.1	50.7
	Girl+	42.4	40.5	44.3	49.6	49.3	49.9
Child age (total)	Age 2 to 4	6.4	5.6	7.3	20.6	20.3	20.8
	Age 5 to 11	53.6	51.7	55.4	42.8	42.5	43.1
	Age 12 to 17	40.0	38.2	41.8	36.6	36.3	37.0
Census family status	Lone-parent family	27.4	25.6	29.3	16.8	16.3	17.4
	Two parent family	72.6	70.7	74.4	83.2	82.6	83.7
PMK highest educational attainment	High school or less	25.4	23.6	27.2	20.3	19.7	20.9
	Apprenticeship, trades, college, CEGEP	36.5	34.7	38.4	32.6	31.9	33.3
	University degree or diploma (any)	38.1	36.2	40.0	47.1	46.3	47.8
Employment status of PMK and spouse	Neither PMK nor spouse employed[a]	11.9	10.6	13.2	6.8	6.4	7.2
	One (PMK or spouse) employed[a]	38.3	36.3	40.3	33.5	32.8	34.2
	Both PMK and spouse employed[b]	49.8	47.7	51.8	59.7	59.0	60.4

Source: Canadian Health Survey of Children and Youth, 2019, Statistics Canada

[a] May indicate the employment status of one parent in couple families or the employment status of a lone parent
[b] Indicates the employment status of two parents in couple families

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[1] Parents reported their child's gender as male, female, gender diverse, or not stated. Boys+ and Girls+ categories were derived by assigning children identified as male and female genders, respectively, and randomly allocating children who had gender diverse or not stated responses to each gender+ category. This was necessary to protect the confidentiality of gender diverse and not-stated responses.

PMK= Person most knowledgeable.

III.   Using the CFM to examine social participation

10. As mentioned above, the social model of disability suggests that disability can be conceptualized as a social disadvantage imposed by an unsupportive environment in addition to an individual's functional difficulties (Mackenzie et al., 2009). Prior to formal school attendance, childcare is the most common environment in which young children spend their time outside of the family, with 52% of Canadian children aged 0 to 5 (Statistics Canada, 2022a) and 40% of those aged 4 to 12 (Statistics Canada, 2022b) participating in child care in 2022. Based on the 2019 CHSCY data for children aged 2-11, it was estimated that 167,000 children with functional difficulties (40% of children in this age group) were using some type of non-parental childcare arrangement on a regular basis. Among children aged 2-11, functional difficulties were more common among older children (14%) than pre-school children (5%). Because of this difference and that social participation differs by age group (e.g., childcare vs. school) results are presented separately for these two groups. Among 2- to 4-year-olds, fewer children with functional difficulties (56%) used non-parental child care on a regular basis compared with 61% of those without functional difficulties. For children aged 5 to 11, use of childcare was similar for children with and without functional difficulties (38% vs. 35% respectively).

11. Unadjusted regression models suggested that younger children with functional difficulties were less likely to use childcare. However, this association was not significant after adjusting for child and family sociodemographic characteristics (rural residence, province, parental education, low income, recent immigrant status of parent, lone-parent, or number of children in the household), all of which were significantly associated with childcare participation. Among older children (aged 5-11 years), no difference was found in the use of childcare between those with and without functional difficulties.

12. While childcare participation is the most common non-familial social environment in which young preschool aged children participate, for school-aged children (aged 5 to 17 years), school attendance is important. School-aged children may also participate in other types of activities, such as organized physical activities, music, drama, and art clubs. To date, national, population-based information demonstrating participation among those with and without disabilities is lacking, and the CHSCY marks the most recent data source to include both the CFM and these types of social participation activities.

13. Among children aged 5-17, school attendance five days per week was high for both groups, possibly due to mandatory inclusion policies for children with disabilities (although no measure of the degree to which needs were met at school is available). However, differences in school attendance were still found between children with and without functional difficulties overall and within the separate age groups. For example, among children aged 5 to 11 years, a significantly smaller proportion of children with functional difficulties attended school 5 days or more in the past week (71%) than children without functional difficulties (75%). Furthermore, among those aged 12-17, 14% of children with functional difficulties had attended school 2 days or less in the past week, compared to 9% of children without functional difficulties. Children with functional difficulties were also less likely to participate in organized physical activities and in music, drama, or art clubs in the past 12 months than were children without functional difficulties. These associations held even after controlling for child

and family sociodemographic characteristics. Participation in other organized clubs or community groups (e.g., church groups or Scouts) did not differ significantly by functional difficulty status.

Figure 2

School attendance among children with and without functional difficulties based on the CFM
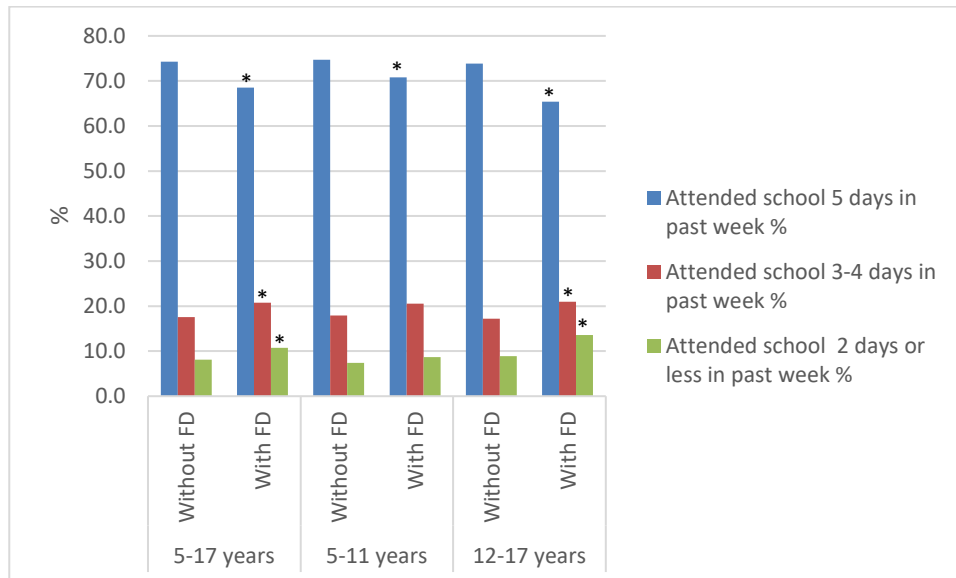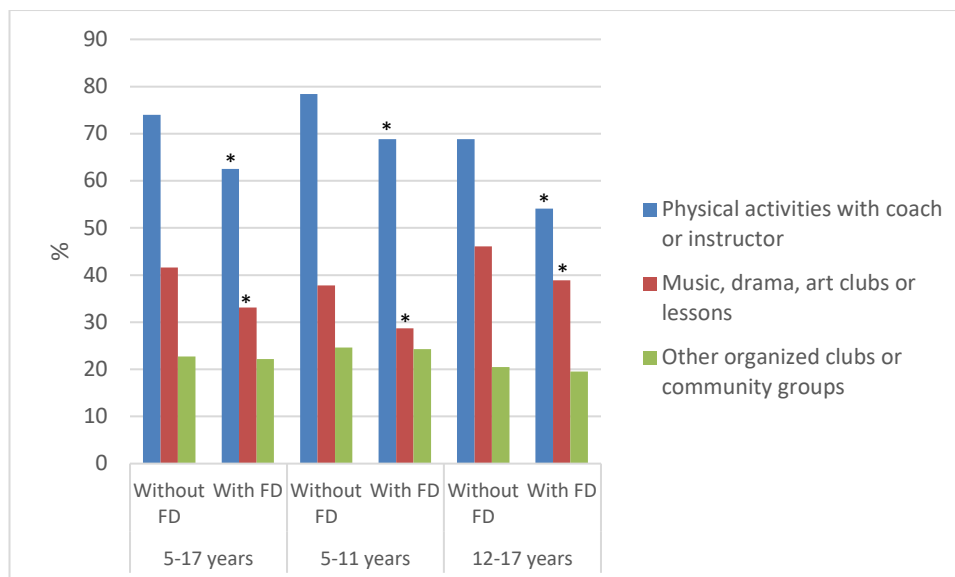

Source: Canadian Health Survey of Children and Youth, 2019, Statistics Canada

* Significant difference between children with and without functional difficulties (p < 0.05)

Figure 3

Participation in organized sports and clubs among children with and without functional difficulties based on the CFM

Source: Canadian Health Survey of Children and Youth, 2019, Statistics Canada

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* Significant difference between children with and without functional difficulties (p < 0.05)

IV.   The CFM as a means to disaggregate SDGs

14. To examine the CFM as a possible disaggregation for SDG reporting we examined functional difficulties by four variables related to three SDGs (i.e., goals relating to poverty, hunger, and good health and well-being). Figure 4 provides estimates of the proportions of children aged 2-17 with and without functional difficulties residing in low-income households (related to SDG #1: No poverty), experiencing food insecurity (related to SDG #2: Zero hunger), and experiencing poorer general or mental health (related to SDG #3: Good health and well-being). Children with functional difficulties were more likely to reside in low-income households, experience food insecurity, and report poorer general and mental health than children without functional difficulties, even after adjusting for child and family sociodemographic characteristics. Similar results were found for boys and girls when examined separately. However, disaggregating by child age group resulted in differences in the SDGs for those 2-11 versus 12-17 (Figure 5). Among children aged 2-11 years with functional difficulties, 37% lived in low-income (compared to 29% of those without functional difficulties). Also notable was that more than twice the number of children aged 12-17 years with functional difficulties reported poorer mental health (63%) compared to 30% of 12–17-year-olds without functional difficulties. The differences were even greater among children aged 2–11-year-olds, 53% for those with and 9% for those without functional difficulties.

Figure 4

Low-income, food insecurity, and poorer general and mental health among children aged 2-17 with and without functional difficulties
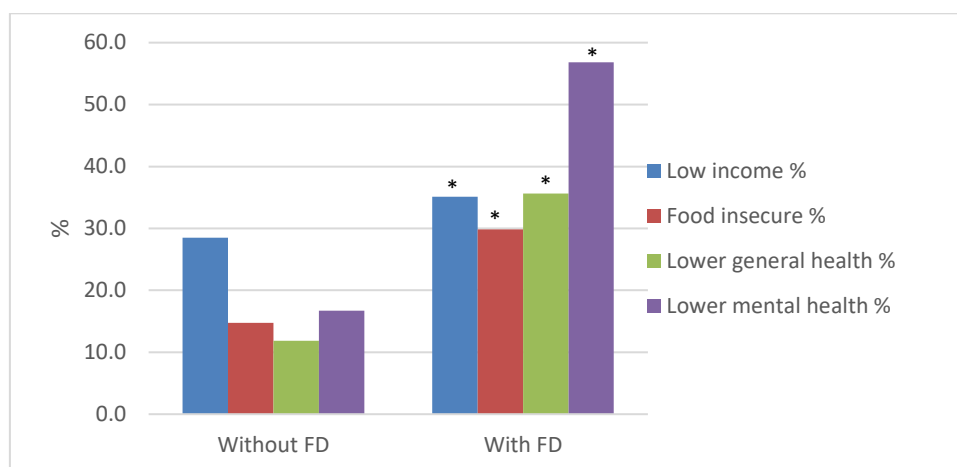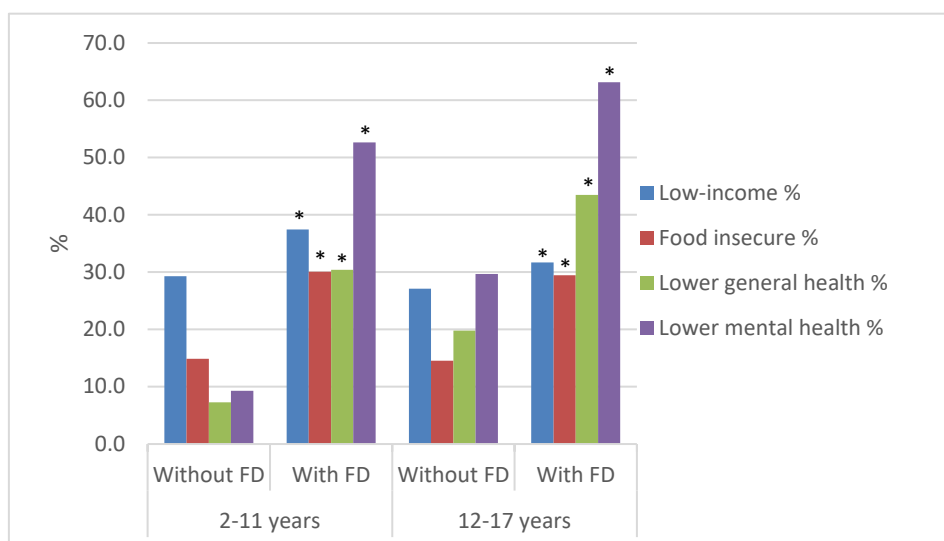

Source: Canadian Health Survey of Children and Youth, 2019, Statistics Canada

* Significant difference between children with and without functional difficulties (p < 0.05)

Figure 5

Low-income, food insecurity, and poorer general and mental health among children aged 2-11 and 12-17 years with and without functional difficulties

Source: Canadian Health Survey of Children and Youth, 2019, Statistics Canada

* Significant difference between children with and without functional difficulties (p < 0.05)

15. While the presented analyses demonstrate that the CFM is a useful tool to report on child and youth functional difficulties, including associations with social participation, as well as being used as a means of disaggregation for SDG reporting, several limitations should be noted. The CFM is not appropriate for children under 2 years of age, which is a limitation for those wanting to focus on the youngest group of children. Other international measures, for example the GALI, do cover younger children (0-1 age group) and although internationally comparable and very brief to administer, the GALI is limited in its ability to identify and compare the causes of acute versus long term or chronic types of activity limitations. An interesting future comparison would be to include both measures together on a child survey to enable a head-to-head comparison in a single survey. Comparing each measure to clinical data would also yield useful results to better understand the utility of each measure and associated limitations. The CFM also faces limitations in providing details about the types of conditions, complexity, and severity which may limit information necessary for developing policies around services, supports, and treatment for children and their families. Finally, relatively little is known about measurement invariance of the CFM across diverse groups in the population, including Indigenous, immigrant, gender diverse, and other children.

16. More general is the question of the role of a national statistical organization to fill additional information gaps concerning child health. This is largely context dependent as different countries have different resources, tools, and mandates to report on child disability. At minimum, while prevalence rates and use of other indicators will differ, having an internationally validated and standardized measure for child disability sets the stage for a consistent and comparable way to assess and monitor how countries are meeting international targets in a consistent and comparable way.

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Appendix. Measures of social participation in the CHSCY

Concept	Question	Response options
Child care	Do you currently use regular child care for [child name]? Include paid or unpaid child care. Exclude care provided by the other parent, even when parents are divorced or separated. Exclude care that is only used: when the child is sick, on professional development days e.g., P.D., P.A., during school breaks e.g., summer, spring or winter break, for occasional babysitting	Yes, no
School participation	In the past 7 days, how many days did [child name/you] attend school, even if for only part of the day?	5 days or more, 4 days, 3 days, 2 days, 1 day, none
Social participation	In the past 12 months, [has/have] [child name/you] participated in a sport or physical activity with a coach or instructor?	Yes, no
	In the past 12 months, [has/have] [child name/you] participated in music, drama or art clubs or lessons?	Yes, no

	In the past 12 months, [has/have] [child name/you] participated in other types of organized clubs or community groups such as [Beavers, Sparks or church groups/Scouts, Guides or church groups]?	Yes, no
Low income	Parent reported total household income divided by number of persons in the household, compared to above or below low income measure threshold.	
Food insecurity	[You/You and other household members] worried that food would run out before you got money to buy more?	Often true, Sometimes true or Never true
	The food that [you/you and other household members] bought just didn't last and there wasn't any money to get more?	Often true, Sometimes true or Never true
	[You/You and other household members] couldn't afford to eat balanced meals?	Often true, Sometimes true or Never true
	[You/You or other adults in your household] relied on only a few kinds of low-cost food to feed [child name/the children] because you were running out of money to buy food	Often true, Sometimes true or Never true
	[You/You or other adults in your household] couldn't feed [child name/the children] a balanced meal because you couldn't afford it?	Often true, Sometimes true or Never true
	[Child name was/The children were] not eating enough because [you/you or other adults in your household] just couldn't afford enough food.	Often true, Sometimes true or Never true
	In the past 12 months, did [you/you or other adults in your household] ever cut the size of your meals or skip meals because there wasn't enough money for food?	Often true, Sometimes true or Never true
	How often did this happen?	Almost every month, some months but not every month, Only 1 or 2 months
	In the past 12 months, did you (personally) ever eat less than you felt you should because there wasn't enough money to buy food?	Yes, No
	In the past 12 months, were you (personally) ever hungry but didn't eat because you couldn't afford enough food?	Yes, No
	In the past 12 months, did you (personally) lose weight because you didn't have enough money for food?	Yes, No
	In the past 12 months, did [you/you or other adults in your household] ever not eat for a whole day because there wasn't enough money for food?	Yes, No
	How often did this happen?	Almost every month, some months but not every month, Only 1 or 2 months
	You/You and other household members] worried that food would run out before you got money to buy more?	Yes, No
	In the past 12 months, did [you/you or other adults in your household] ever cut the size of [child name's/any of the children's] meals because there wasn't enough money for food?	Yes, No

	In the past 12 months, did [child name/any of the children] ever skip meals because there wasn't enough money for food?	Yes, No
	How often did this happen?	Almost every month, some months but not every month, Only 1 or 2 months
	In the past 12 months, [was child name/were any of the children] ever hungry but you just couldn't afford more food?	Yes, No
	In the past 12 months, did [^DT_FNAME/any of the children] ever not eat for a whole day because there wasn't enough money for food?	Yes, No
Health	In general, how is your/[child name]'s health?	Excellent, Very good, Good, Fair, Poor
Mental health	In general, how is your/[child name]'s mental health?	Excellent, Very good, Good, Fair, Poor