



# MONITORING SYSTEM DATA: RESEARCH IN ACTION



## Monitoring System Overview

The Child Development Monitoring System (Monitoring System), hosted by the Human Early Learning Partnership (HELP) at the University of British Columbia (UBC) in partnership with the Capturing Health and Resilience Trajectories (CHART) Lab at Simon Fraser University (SFU), gathers information on critical periods in children's development and has been successfully developed with the financial support of BC provincial ministries. The Monitoring System questionnaires are used to gather data on individual, family, and community factors from a diversity of perspectives: parents, teachers and children themselves. These data about child, youth and family health, well-being, experiences and environments are needed to answer the question: "What are the differences that make a difference?"

The Child Development Monitoring System has 23 years of data and over 550,000 records (Figure 1). These data have already proven invaluable in policy development, community planning, and as indicators of progress in supporting children and families.

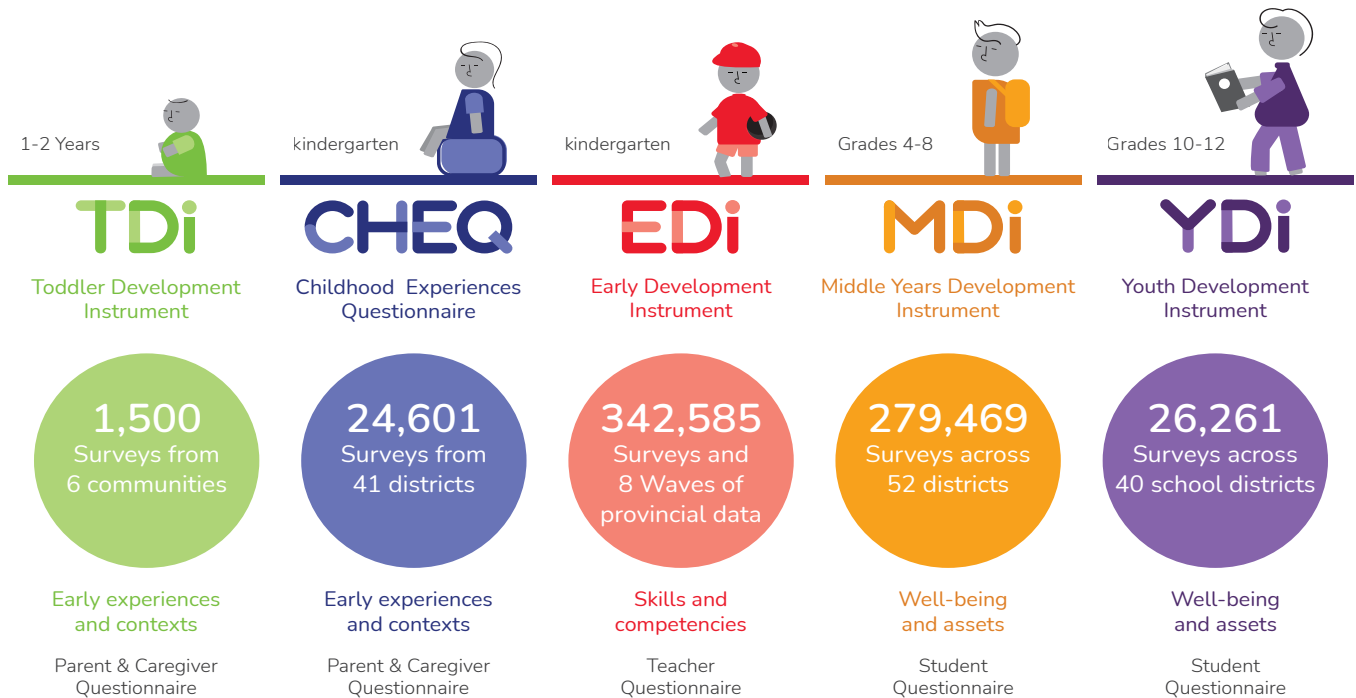


Figure 1. Child Development Monitoring System

DOMAINS,  
SCALES, TOPICS

TDi

CHEQ

EDi

MDi

YDi

DOMAINS, SCALES, TOPICS	TDi	CHEQ	EDi	MDi	YDi
PHYSICAL HEALTH & WELL-BEING	Child Health & Well-being	Physical Health & Well-being	Physical Health & Well-being	Physical Health & Well-being	Physical & Mental Well-being
SOCIAL & EMOTIONAL	Early Social Experiences & Activities	Social & Emotional Experiences	Social Competence Emotional Maturity	Social & Emotional Development	Social & Emotional Development
LANGUAGE & COGNITION	Early Activities	Language & Cognition Experiences	Language & Cognitive Development Communication Skills & General Knowledge		
SOCIAL SUPPORT, CONNECTEDNESS	Caregiver Well-being & Social Support	Community Connectedness		Connectedness	Social Well-being
CONTEXT, ENVIRONMENT	Community Resources Early Learning & Child Care	Community & Context Early Learning & Child Care		Use of Out of School Time School Experiences	Learning Environment & Engagement Navigating the World

Figure 2 . Alignment of domains across the Monitoring System

## Summary of Monitoring System Research and Data in Action

The Monitoring System allows us to monitor and track population-level trends including rates of childhood vulnerability and school-age well-being. Monitoring System data reflect the complexity of the contexts in which children are being raised, and over time, tell us how well our society is doing in supporting children and families. Figure 2 lists the common domains of information gathered through the Monitoring System questionnaires.

Population-level data from the Monitoring System are woven into the fabric of BC. These data are used across school districts, health authorities, communities and governments by practitioners, advocates and leaders to inform initiatives that aim to improve outcomes for children and their families. Examples of [Data in Action](#) across diverse sectors and multiple levels can be found on the HELP website.

With over two decades of data gathered, the Monitoring System also offers internationally unique research opportunities including linking data across tools and with health, education and census data to explore how early childhood development and experiences influence later health, education and social outcomes.

## Highlights and examples of Monitoring System Research in Action

1. Long term data trends in developmental health and well-being
2. Program and policy evaluation
3. The power of linkage
4. Exploring assets and protective factors
5. Focus on special populations and equity
6. Impact of the COVID-19 pandemic
7. Emerging priority topics



## Long term data trends in developmental health and well-being

### 20 years of early childhood and 10 years of middle childhood data

Early Development Instrument (EDI) data have been gathered for over 330,000 kindergarten children in the last two decades. In the most recent provincial data collection, 32.9%, or approximately 13,500 of kindergarten children, were vulnerable on one or more scales of the EDI. This means that there are 1 in 3 children arriving in kindergarten vulnerable on one or more areas of development important to their future success, and this rate has been increasing over the long-term (Figure 3).

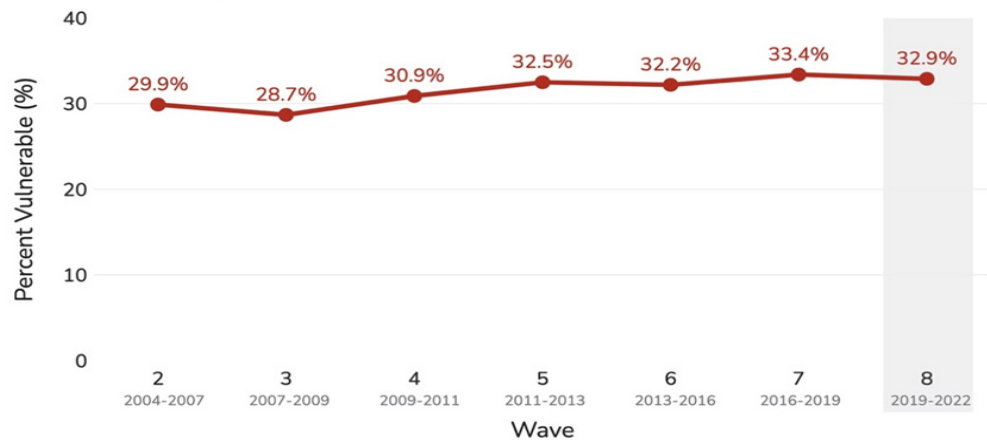


Figure 3. EDI Overall Vulnerability Trend for BC, Wave 2 to Wave 8

## Middle childhood mental well-being trends over time

With more than a decade of Middle Years Development Instrument (MDI) surveys being collected in school districts annually, MDI data provide an ideal opportunity for monitoring changes in social-emotional and mental well-being over time. MDI data show steady declines in positive well-being and increases in sadness over the years. The changes were statistically significant for most years. The decline in well-being was significantly more pronounced among girls than boys and was evident for children regardless of the socio-economic status of their neighbourhood (low, medium or high).



## Program and policy evaluation

Monitoring System data can be used to evaluate programs, from preschool programs and early interventions to school-based programs and initiatives. A pan-Canadian project exploring the impact of policies including the Canada Child Benefit and full day kindergarten on early development through the EDI is currently in progress. Outside of BC, EDI data have been used to evaluate preschool programs and early interventions (e.g. home visiting)<sup>1</sup>.

## The power of linkage

Research linking data within the Monitoring System (CHEQ to EDI, EDI to MDI, etc.) and research linking Monitoring System data to health, education, census and other administrative datasets, offers opportunities to understand the complex influences of context and experiences on health, well-being and development.

### Linking early experiences and environments to early child development

The Childhood Experiences Questionnaire (CHEQ) was developed to gather data on children's early experiences and environments to provide insight into some of the variability indicated by EDI data for children's development across neighbourhoods and school districts. Linking CHEQ and EDI data demonstrate a gradient relationship between socio-economic status indicators (e.g., household income and parental education) and both early experiences and developmental outcomes. As family socio-economic status increases, parents are more likely to report more peer experiences, literacy experiences, and health promoting activities, and the children are less likely to be vulnerable on the EDI in kindergarten (Figure 4).

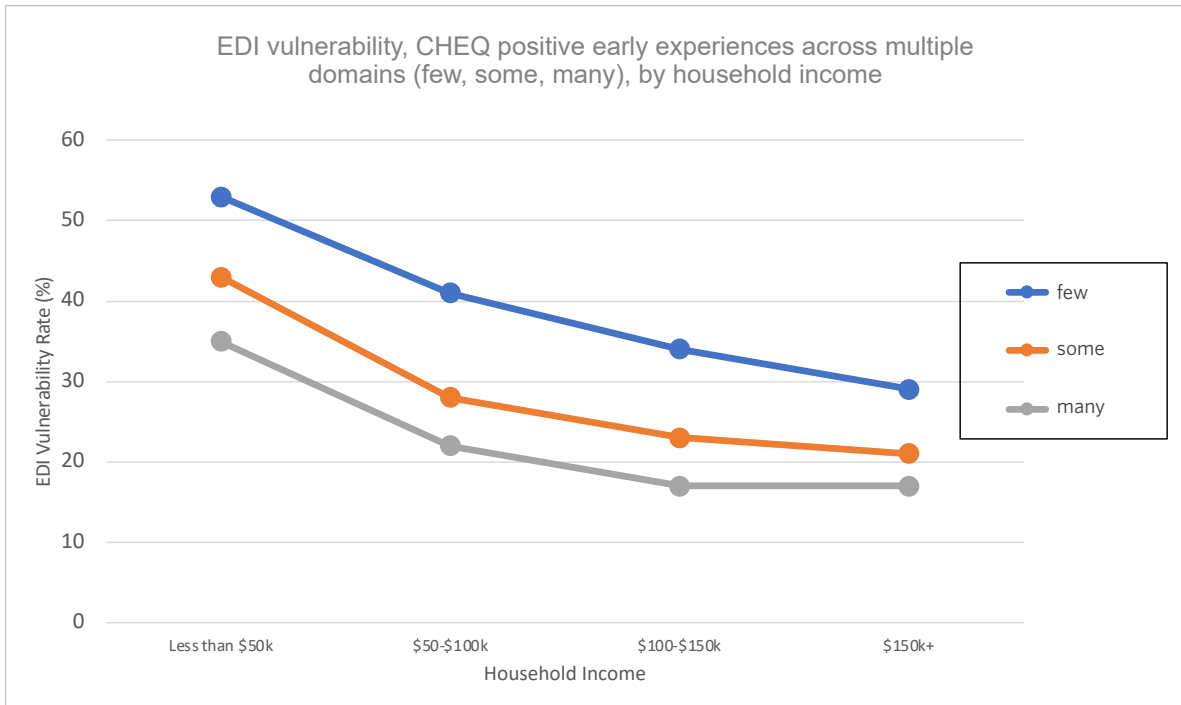


Figure 4 . Overall EDI Vulnerability Rate, CHEQ Composites Combined, by Household Income

### Linking social determinants of health to academic and mental health outcomes

Monitoring System research demonstrates the contributions of social determinants of health to predicting later academic and mental health outcomes. Two examples of research linking health, education, and Monitoring System data are provided in Figure 5 below. Complex linkage analyses to examine health trajectories from birth to graduation can help us to understand the social determinants of mental health and well-being in various populations.

#### Research linking birth records, census variables and EDI data

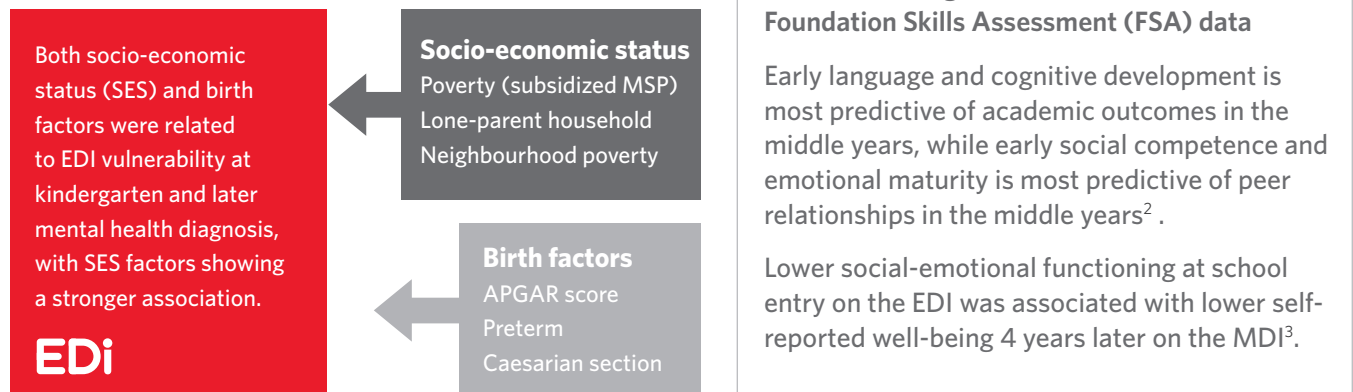
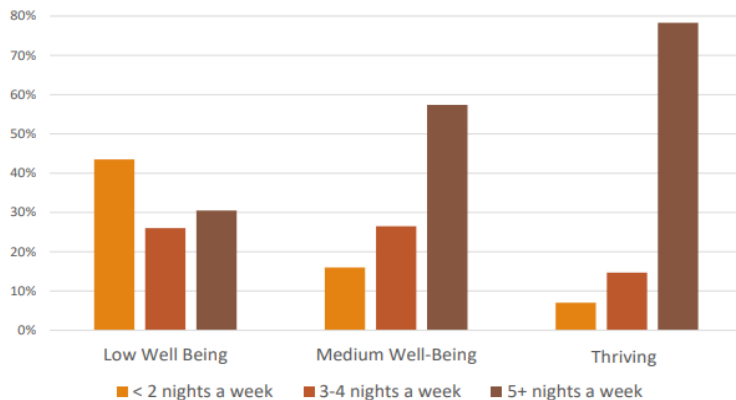


Figure 5 . Linkage research highlights: Exploring the differences that make a difference.

# Exploring assets and protective factors

The Monitoring System gathers information about assets and protective factors that promote health and well-being, including positive relationships with peers and adults, school climate, nutrition, sleep, physical activity, risky play behaviours, and participation in organized or after-school activities. These assets are selected because research in the field of resiliency indicates that these assets are malleable and actionable – schools and communities can develop and strengthen these assets for the children they serve.

MDI Well-being according to self-reported number of good night's sleep



Students in Grades 6 to 8 who reported healthy behaviours, meeting physical activity, sleep and screen time recommendations, were more likely to report high well-being (thriving) on the MDI (the relationship between sleep and well-being is shown in Figure 6).

The importance of connectedness to children's well-being was highlighted in recent MDI research. As mentioned earlier, MDI data has shown declining trends in reported high well-being (thriving) rates over time. However, declining thriving rates flattened

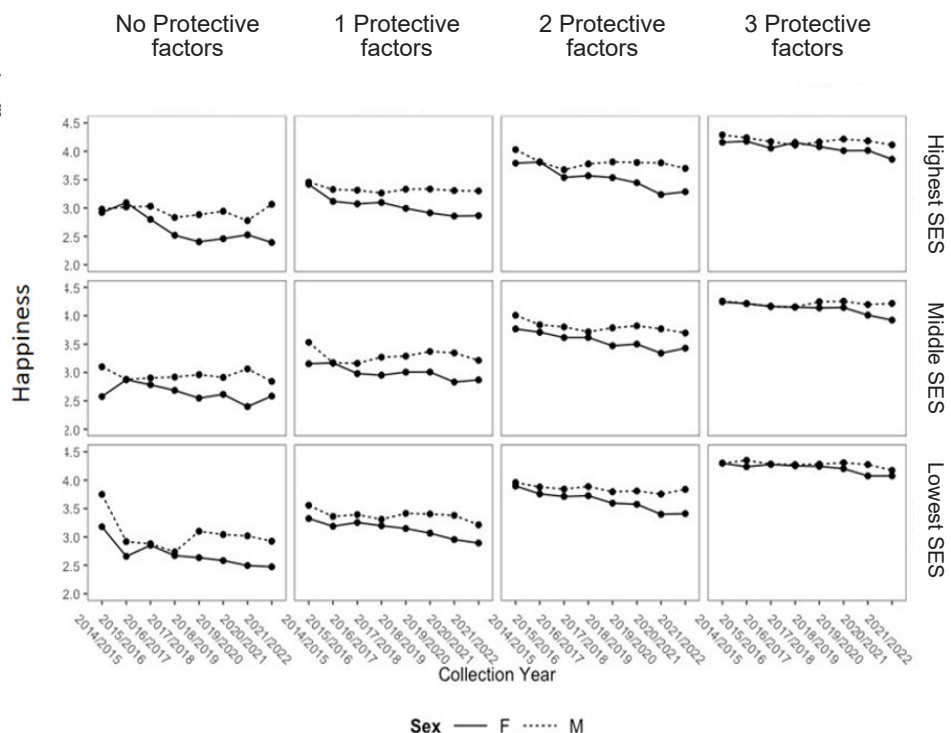
Figure 6. MDI Well-being according to self-reported number of good night's sleep

significantly for children who reported experiencing high levels of school connectedness, peer belonging, and connectedness to an adult in school (Figure 7). This indicates that connectedness with adults, peers and to school are key modifiable factors in mental health promotion efforts.

This graph demonstrates the stepwise relationship between reported happiness and each additional protective factor; reducing the differences between genders and the effect of SES on rates of happiness

- Protective factors:
- Peer belonging
  - Adult support in school
  - School connectedness

Figure 7. Happiness on the MDI by protective factors, sex and socio-economic status (SES)



## Focus on special populations and equity

Through the inclusion of demographic information across Monitoring System tools, these data can be used to support explorations focused on special populations, including immigrant and refugee children, children with health disorders or special needs, as well as children in care. For example, the Canadian Children's Health in Context Study uses EDI data to investigate differences in developmental health outcomes of children with health disorders, such as anxiety, as well as neighbourhood socio-economic census data to explore associations between SES and rates of diagnoses<sup>4</sup>.

### Research Highlights

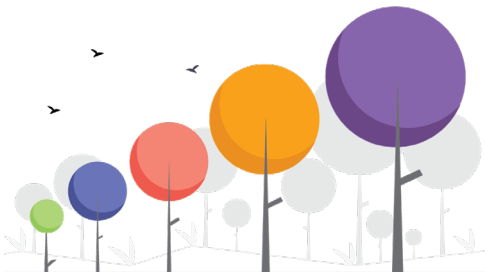
Children experiencing household and neighbourhood poverty were more likely to be vulnerable on the EDI. This was true for both second-generation immigrant children and non-immigrant children<sup>5</sup>.

On the YDI, students that identified as 2SLGBTQIA+, non-binary, or had pre-existing mental health conditions were more likely to report poorer mental health and self-identity, lower social well-being and belonging, and physical activity, and less quality sleep<sup>6</sup>.



## Indigenous data collection and data sovereignty

Established in 2003, the Aboriginal Steering Committee (ASC) at HELP is made up of First Nations, Inuit and Métis community members whom through sharing their knowledge and experience, support a deeper understanding of the social, environmental, and cultural determinants of Indigenous children's health and well-being. The ASC ensures HELP's research activities involving First Nations, Inuit and Métis children and families are reflective of the diverse histories, cultures, languages, values, and ways of knowing and being.



Monitoring System questionnaires include an opportunity to self-report Indigenous identity directly through the MDI, via parents/caregivers on the TDI and CHEQ, and through teachers reporting on what parents have shared with the schools on the EDI.

HELP acknowledges and respects the sovereignty and jurisdiction of Indigenous families, communities, and governments over their children. As such, they have the right to access data collected for their children. HELP has been guided by the ASC in developing methods to facilitate the sharing of disaggregated Indigenous data with Indigenous governments and organizations committed to the health and well-being of First Nations, Inuit and Métis children.

## Impact of rare events such as the COVID-19 pandemic

The Monitoring System questionnaires have been used to assess changes in well-being over time during the pandemic, including adding additional questions to measure the impacts of COVID-19 and pandemic-related restrictions from the perspectives of parents, children and youth.

### Research Highlights

Positive changes in relationships with adults at home and school, and feeling safe from getting COVID-19 at school were predictive of students' well-being in Grade 8 during the pandemic<sup>7</sup>.



On the YDI, 21% of respondents reported a decline in their mental health during the pandemic, and 32% reported getting more sleep during the pandemic<sup>8</sup>.

Many parents of young children reported broad impacts of the pandemic on their own well-being, their access to child care, the daily experiences of their children, family time, income and employment<sup>9</sup>.

## Emerging priority topics

HELP and CHART Lab engage with school, health and community partners, and children and youth themselves to ensure the questionnaires are gathering information about relevant topics. Emerging priority topics include mental health and substance use, climate concern, active travel and social media.

The Monitoring System includes self-reported measures on well-being and mental health from children in the middle years to adolescence, and youth substance use behaviours. Topics also include how youth support their mental health, cope with mental and emotional adversity, and their experiences seeking mental health services (Figure 8).

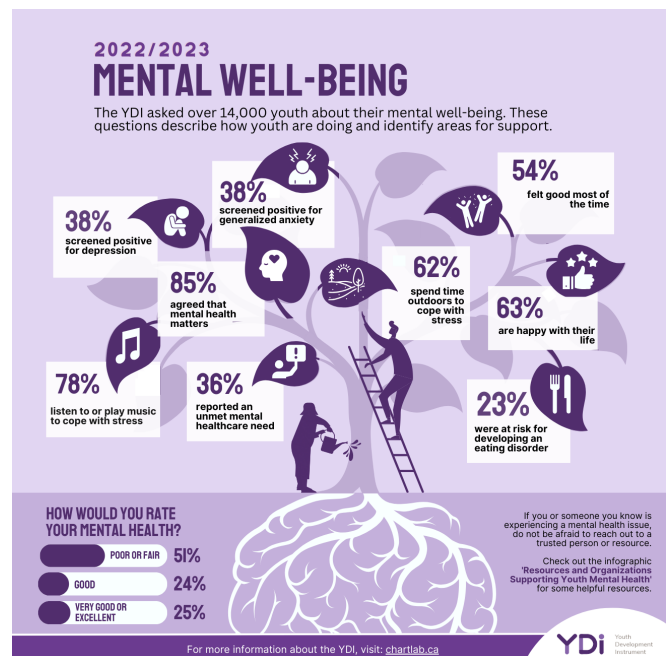


Figure 8. YDI Mental Well-Being Infographic

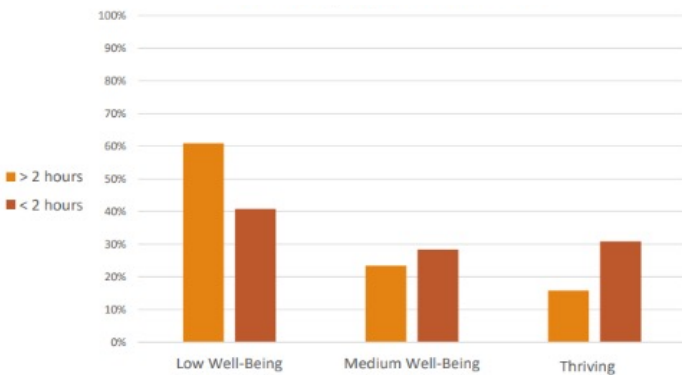




In the middle years and adolescence, children are becoming more aware of the natural environment and the impact of climate change. MDI and YDI include measures related to climate and environmental concerns.

Active travel has emerged as a policy priority for school systems, municipalities, health authorities and community groups. MDI and YDI data about the modes of transportation children and youth use to travel to and from school are being used to inform planning and program development. Examples of actions related to active travel include: focus on road safety to facilitate biking and walking to and from school; promotional activities to encourage family active travel; walking school bus organizing; municipal planning around transit routes, among others.

Well-being by Social Media Use




Children who reported using social media 2+ hours/day were more likely to report lower levels of thriving.

Figure 9 . MDI Well-being by social media usage

Three Monitoring System tools (CHEQ, MDI, YDI) gather information about children’s screen time behaviour, including social media use by older children. Research linking CHEQ and EDI data has found that children in the early years reported to have more than the recommended amount of daily screen time (max. 1 hour per day) on the CHEQ, are more likely to be vulnerable on all areas of development measured by the EDI (Figure 10).

MDI data analysis has shown that children in Grades 6-8 who reported using social media 2 or more hours per day were more likely to report lower well-being (Figure 9).



Linked CHEQ to EDI data for 2,983 children (BC)

### Screen Time and Early Child Development

**40% of children had more than the recommended 1 hour/day of screen time**

**Children with more than 1 hour/day of screen time were more likely to be vulnerable OVERALL on each of the five scales of the EDI:**

Physical Health (+41%)	Language/Cognitive Development (+81%)
Social Competence (+60%)	Communication Skills and General Knowledge (+60%) <sup>10</sup>
Emotional Maturity (+29%)	

Figure 10 . CHEQ-EDI screen time research

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