Public Health Ontario | Santé publique Ontario

ENHANCED EPIDEMIOLOGICAL SUMMARY

Sedentary Behaviour Indicators Using Data from the Canadian Health Survey on Children and Youth

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Highlights

- In Ontario, 54.1% (95% CI: 51.7-56.6) of children ages 3-4 years, 65.9% (95% CI: 64.6-67.2) of children ages 5-11 years, and 51.5% (95% CI: 50.0-53.0) of youth ages 12-17 years adhered to screen time guidelines, for a median screen time of 5.9, 10.0, and 11.7 hours per week, respectively.
- There were significant differences in reported screen time and adherence to screen time guidelines by age group. There were also significant differences by sex at birth, highest level of parent education, household income, race and ethnic origin, and immigration status; however, these reported differences were not observed in each age group, and differing electronic device use patterns informed the use of age-stratified analyses.
- There were significant differences in reported screen time and adherence to screen time guidelines by Statistics Canada Peer Group and geographic region. Generally, children and youth living in the most urban and dense regions used electronics for less time compared to those living in more rural and less dense regions.

Introduction

This report provides an overview of sedentary behaviour and screen time indicators in children and youth 3-17 years as measured by the 2019 Canadian Health Survey on Children and Youth (CHSCY).[1] Total screen time per week, the prevalence of meeting screen time recommendations from the Canadian 24-Hour Movement Guidelines (24-HMG),[2] weekly electronic use while inactive, and the prevalence of electronic use before sleep are described, as well as any relationships with socio-demographic characteristics. Sedentary behaviour indicators were also examined by Statistics Canada Peer Group, geographic regions, and Public Health Unit. For more information about the CHSCY data and population characteristics, please see the CHSCY Technical Report.

Sedentary behaviours are associated with several health outcomes in children and youth. There is evidence that higher levels of sedentary behaviours, especially television viewing and recreational screen time, may be adversely associated with a number of health indicators including poorer body composition, increased cardiometabolic risk, worse behaviour/socialization, and lower fitness.[3]

The Canadian 24-HMGs provide recommendations for physical activity, sedentary behaviour, and sleep. The sedentary behaviour portion of the 24-HMGs focuses on screen time as the main sedentary

behaviour and recommends one hour per day or less of any screen time for children ages 3-4 years,[4] and 2 hours per day or less of recreational screen time for children and youth ages 5-17 years.[5] Other aspects include limiting time spent using screens for recreation to 1-hour or less per occasion in children ages 3-4 years, limiting sitting for children and youth ages 5-17 years, and replacing sedentary activities with physical activities in all age groups.

In the CHSCY, sedentary behaviour indicators are only measured starting at three years of age, and due to differences in measurement methodologies and sedentary behaviour patterns across age groups, these estimates are reported stratified by age group (3-4, 5-11, and 12-17 years). Surveillance on sedentary behaviours has historically focused on recreational screen time and electronic device use during free time.[6] In CHSCY, there are three main questions to capture sedentary behaviour or screen time: 1) watching movies, videos, YouTube, Netflix or television programs, 2) playing games on an electronic console and 3) time spent using electronics inactively. Although the latter question specifies inactivity, the 24-HMGs uses general screen time in the recommendations. As such, a composite variable of total screen time was created by adding the total amount watching television and playing games on a console (see Technical Notes for more details). Finally, electronic device use before sleep was also examined due to established associations with sleep timing and quality.[7]

Provincially representative sedentary behaviour/screen time data on children younger than 12 years are lacking. Understanding the socio-demographic and geographic factors related to sedentary behaviour/screen time during childhood will help public health practitioners and their community partners target interventions towards disproportionately affected Ontarians. This report provides a baseline overview of sedentary behaviour/screen time indicators prior to the COVID-19 pandemic and will assist in sedentary behaviour/screen time investigations using future releases of the CHSCY.

Race-based and Indigenous Identity Data

The CHSCY utilizes the following socio-demographic terms to describe its variables: “Population Group”, “Visible Minority”, and “Aboriginal Identity”. To stay current with health equity language preferred by impacted communities and to reduce unintentional harms when discussing and utilizing findings of the CHSCY, we have replaced the CHSCY terminology with the following terms in this report, where possible: “race and ethnic origin”, “racialized groups”, and “Indigenous”.

‘Race’ is a social construct without a biological basis and created to categorize people into different groups based on visual traits in ways that create and maintain power differentials within society.[8] Ethnic origin refers to communities’ learned or adopted characteristics such as language, practices, and beliefs.[9,10] Note that the categorization of people as Indigenous, Black, and other racial categories has been historically and currently used to mark certain groups for exclusion, discrimination, and oppression. Racism, racial categorization and racial discrimination; therefore, continue to shape the lives and opportunities of those who are categorized as “racialized people”.[10]

Race-based and Indigenous identity data is vital for the identification and monitoring of health inequities that stem from racism, bias and discrimination, and to inform the design of programs and services to reduce inequitable health outcomes.[11] However, it is important to interpret the association between these data and health outcomes in the context of historical and ongoing policies, practices, and structures that drive and maintain inequities, including systemic racism and colonialism. Critically assessing and contextualizing race-based and Indigenous identity data is imperative due to the potential harms from misuse and misinterpretation. For more information on socio-demographic terminology and the appropriate interpretation and use of socio-demographic data, please refer to the Technical Notes and the CHSCY Technical Report.

Results

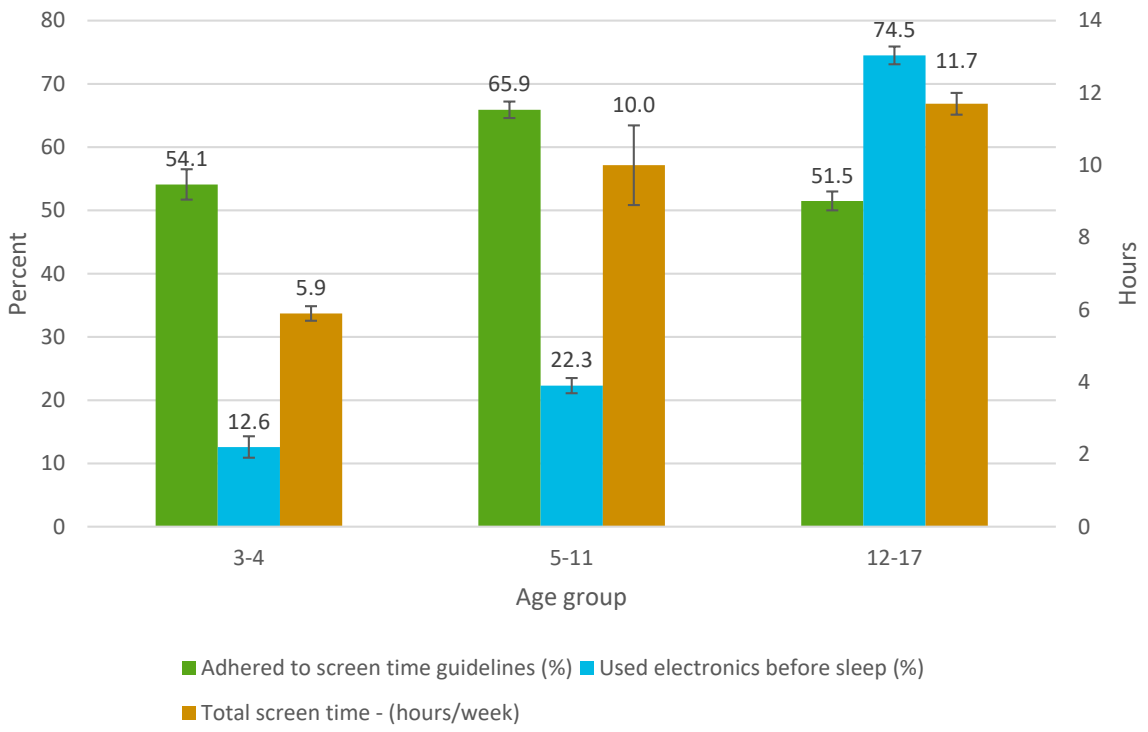
- A list of all sedentary behaviour and screen time/electronic device use indicators are presented in Table 1 by age group.
- Overall, the majority of children and youth adhered to screen time guidelines. Total screen time. adherence to screen time guidelines, electronic use before sleep, and weekly time spent using electronics while inactive significantly differed by age group. Screen time, using electronics while inactive, and the percentage of children and youth that used electronics before sleep increased with increased age (Figure 1; Table 1).

Table 1: All sedentary behaviour and electronic device use indicators in CHSCY by age group; Ontario, 2019.

Indicator	3 to 4 years Percentage or Median (95% CI)	5 to 11 years Percentage or Median (95% CI)	12 to 17 years Percentage or Median (95% CI)
Screen time - Watch movies/videos/YouTube/Netflix/ television (hours/week)	4.1 (3.9-4.4)	4.7 (4.5-4.8)	6.2 (5.9-6.5)
Screen time - Play games on console/electronic device (hours/week)	0.0 (0.0-0.1)	1.2 (1.1-1.2)	1.4 (0.9-1.9)
Total screen time (hours/week)	5.9 (5.7-6.2)	10.0 (8.9-11.1)	11.7 (11.4-12.0)
Adhered to screen time guidelines (%)	54.1 (51.7-56.6)	65.9 (64.6-67.2)	51.5 (50.0-53.0)
Electronic device use while inactive (hours/week)	3.1 (2.9-3.3)	4.7 (4.5-4.8)	8.9 (8.6-9.3)
Used electronics before sleep (%)	12.6 (11.0-14.3)	22.3 (21.1-23.5)	74.5 (73.1-75.9)

*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test $p<0.05$).
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response $p<0.05$).

Figure 1: Adherence to screen time guidelines, electronic use before sleep, and weekly screen time by age group in children and youth ages 3-17 years; Ontario, 2019.



Children ages 3-4 years

- Approximately half of children ages 3-4 years [54.1% (95% CI: 51.7-56.6)] adhered to screen time guidelines of less than 1 hour per day, either watching television, YouTube or Netflix or playing on an electronic console for a median time of 50.6 minutes daily. Only 12.6% (95% CI: 11.0-14.3) used electronics before sleep.

HIGHEST PARENTAL EDUCATION, HOUSEHOLD INCOME, AND LOW INCOME CUT-OFF (LICO)

- In children ages 3-4 years, the percentage of children who used electronics before sleeping significantly differed by highest parental education (Figure 2; Table 2), household income categories (Table 2), income quintiles (Figure 3; Table 2), and low income cut-off (Table 2). The percentage of children that used electronics before sleep decreased as measures of socio-economic status (SES) increased.

- Total screen time, adherence to screen time guidelines and electronic device use while inactive were not significantly different by parent education or income variables.

Figure 2: Used electronics before sleep by highest level of parental education in children ages 3-4 years; Ontario, 2019.

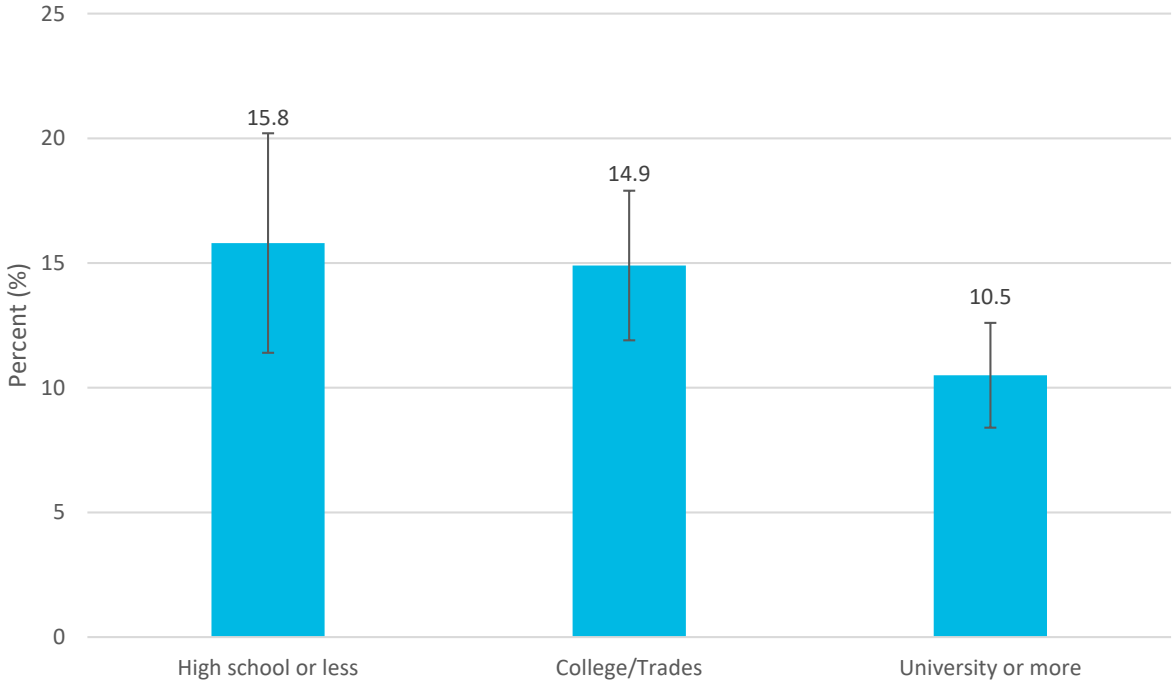


Figure 3: Used electronics before sleep by income quintiles in children ages 3-4 years; Ontario, 2019.

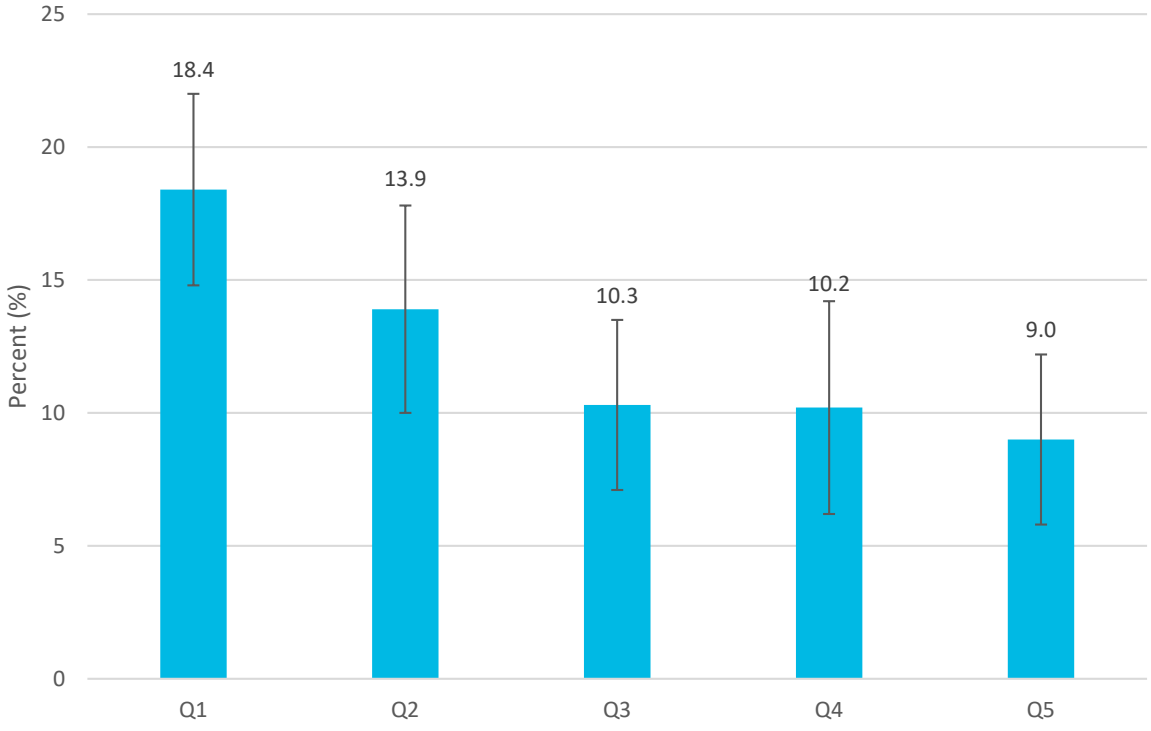


Table 2: Total screen time, adherence to screen time guidelines, electronic use while inactive, and electronic use before sleep by highest parental education and income variables in children ages 3-4 years; Ontario, 2019.

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Highest Parental Education				
High school or less	5.9 (4.7-7.1)	55.1 (48.3-61.8)	3.0 (2.5-3.5)	15.8 (11.4-20.2)*
College/Trades	6.7 (4.7-8.7)	49.7 (45.8-53.7)	3.1 (2.8-3.4)	14.9 (11.9-17.8)*
University or more	5.6 (5.1-6.0)	56.6 (53.2-59.9)	3.2 (2.9-3.4)	10.5 (8.4-12.6)*
Household Income				
<$24,999	5.9 (4.3-7.5)	55.2 (47.3-63.2)	3.0 (2.4-3.6)	21.5 (15.0-28.1)*
$25,000 to 49,999	6.0 (4.1-8.0)	52.5 (46.3-58.7)	2.9 (2.4-3.4)	16.0 (12.2-19.9)*
$50,000 to 74,999	6.4 (4.1-8.8)	50.5 (44.7-56.4)	3.5 (3.0-4.0)	14.2 (10.1-18.4)*
$75,000 to 99,999	5.9 (3.8-8.1)	53.0 (46.7-59.4)	3.0 (2.5-3.5)	12.7 (8.1-17.2)*
$100,000 to 149,999	5.6 (4.7-6.4)	57.9 (52.9-62.9)	3.0 (2.6-3.4)	10.4 (6.8-13.9)*
$150,000 to 199,999	6.0 (4.4-7.5)	54.4 (47.7-61.1)	3.1 (2.6-3.7)	7.3 (3.9-10.6)*
$200,000 and higher	5.5 (3.9-7.1)	54.8 (47.8-61.9)	3.4 (2.9-4.0)	9.3 (5.6-13.1)*
Income Quintiles				
Q1	6.1 (4.4-7.8)	52.6 (46.9-58.4)	3.0 (2.6-3.4)	18.9 (14.8-23.0)*
Q2	6.3 (4.3-8.2)	52.0 (46.6-57.3)	3.3 (2.9-3.7)	14.4 (11.0-17.8)*
Q3	5.7 (4.5-7.0)	55.1 (49.7-60.6)	2.8 (2.4-3.3)	11.3 (7.8-14.8)*
Q4	5.3 (4.4-6.3)	60.0 (54.9-65.1)	3.1 (2.7-3.5)	10.2 (6.5-13.8)*
Q5	6.3 (4.3-8.4)	51.0 (45.5-56.5)	3.3 (2.9-3.8)	8.5 (5.6-11.5)*
Low Income Cut-Off (LICO)				
Above cut off	5.8 (5.5-6.1)	55.1 (52.3-57.8)	3.2 (3.0-3.4)	10.8 (9.0-12.6)*

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Below cut off	6.4 (4.4-8.3)	50.9 (45.6-56.2)	2.9 (2.5-3.3)	18.9 (15.1-22.7)*

*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05).

SEX AT BIRTH, RACE AND ETHNIC ORIGIN, INDIGENOUS IDENTITY, AND IMMIGRATION STATUS

- In children ages 3-4 years, total screen time, adherence to screen time guidelines, electronic use while inactive, and electronic use before sleep did not significantly differ by sex at birth, race and ethnic origin, Indigenous identity, or immigration status (Table 3).

Table 3: Total screen time, adherence to screen time guidelines, electronic use while inactive, and electronic use before sleep by sex at birth, race and ethnic origin, Indigenous identity, and immigration status in children ages 3-4 years; Ontario, 2019.

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Sex at birth				
Male	5.9 (5.4-6.5)	53.7 (50.4-57.0)	3.0 (2.8-3.3)	11.2 (9.2-13.3)
Female	5.9 (5.5-6.3)	54.6 (51.0-58.2)	3.2 (3.0-3.5)	14.1 (11.6-16.6)
Race and ethnic origin				
Black	5.7 (4.3-7.0)	59.2 (50.0-68.3)	2.2 (1.3-3.1)	15.0[C] (9.6-20.4)
East Asian	5.2 (3.4-7.1)	57.6 (48.2-67.0)	3.0 (2.2-3.9)	12.7[D] (5.8-19.7)
Latin American	4.5[C] (0.7-8.3)	59.1[C] (37.2-81.0)	1.7[C] (0.0-3.6)	NR
Other (Multiple)	7.8 (5.3-10.3)	46.5 (33.5-59.5)	3.4 (2.3-4.5)	18.8[D] (8.8-28.9)
South Asian	6.4 (3.8-8.9)	50.8 (43.2-58.4)	3.5 (2.8-4.1)	13.7[C] (8.7-18.7)
Southeast Asian	5.9 (3.7-8.2)	51.7 (39.0-64.3)	3.5 (2.6-4.3)	27.3[C] (16.8-37.8)
West Asian/Arab	7.3 (4.4-10.3)	49.0[C] (34.3-63.7)	3.3 (1.4-5.2)	10.3[D] (3.6-16.9)

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
White/Non-racialized†	5.9 (5.5-6.2)	54.6 (51.5-57.6)	3.2 (3.0-3.4)	11.3 (9.3-13.3)
Indigenous identity				
Indigenous	6.0 (3.0-9.0)	53.3 (40.1-66.5)	2.3 (1.0-3.6)	8.7[D] (3.2-14.2)
Non-Indigenous	5.9 (5.7-6.2)	54.1 (51.6-56.6)	3.2 (3.0-3.4)	12.8 (11.1-14.5)
Immigration status				
Non-immigrant	5.9 (5.7-6.2)	54.1 (51.6-56.6)	3.2 (3.0-3.4)	12.4 (10.7-14.0)
Immigrant	6.1 (3.5-8.7)	52.9 (41.3-64.4)	3.0 (2.0-4.0)	18.3 (10.3-26.2)
Non-permanent resident	NR	NR	NR	NR

†Excludes those identifying as Indigenous.
C, D – This estimate should be interpreted with caution due to high sampling variability.
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E).

PEER GROUP

- In children ages 3-4 years, the percentage of children who used electronics before sleep significantly differed across Statistics Canada Peer Groups (described in the Technical Notes). Peer Groups G&H had the greatest percentage of children who used electronics before sleep and Peer Group B had the smallest percentage (Figure 4; Table 4).
- There were no statistically significant differences in screen time, adherence to guidelines or electronic use while inactive by peer group (Table 4).

Figure 4: Used electronics before sleep by Statistics Canada Peer Group in children ages 3-4 years; Ontario, 2019.

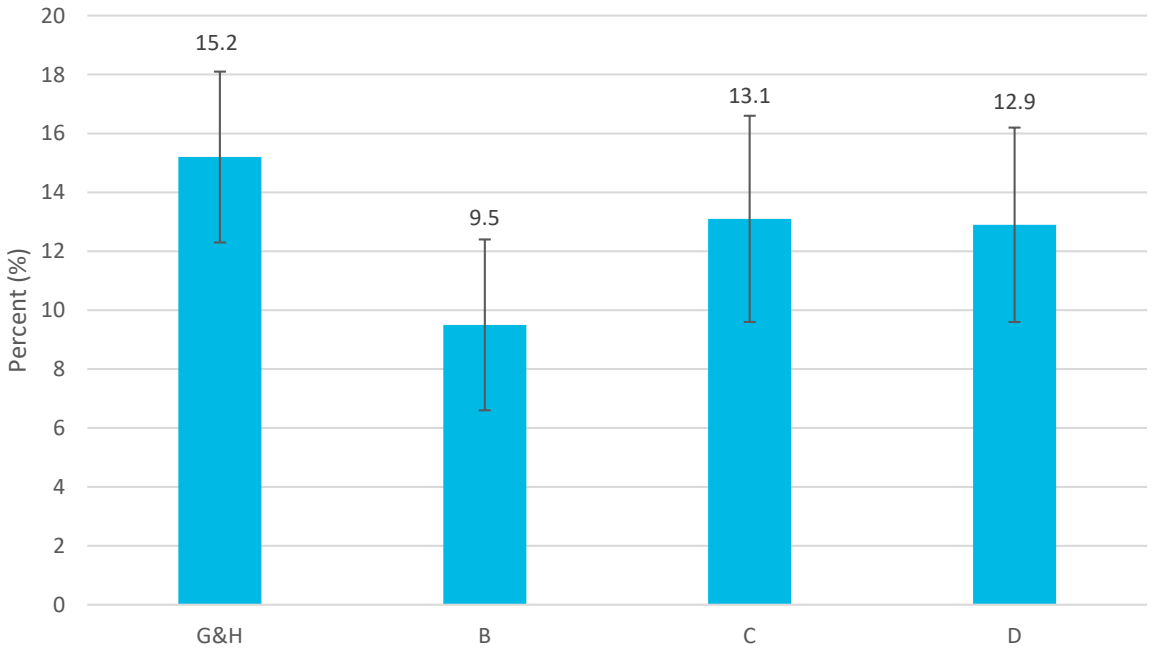


Table 4: Total screen time, adherence to screen time guidelines, electronic use while inactive, and electronic use before sleep by Statistics Canada Peer Group in children ages 3-4 years; Ontario, 2019.

Peer Group	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Group G&H	5.8 (5.4-6.3)	55.0 (51.5-58.6)	3.1 (2.8-3.4)	15.2 (12.3-18.1)*
Group B	6.1 (4.8-7.3)	53.1 (48.0-58.2)	3.2 (2.8-3.6)	9.5[C] (6.7-12.4)*
Group C	6.2 (4.4-8.0)	52.4 (47.4-57.4)	3.2 (2.8-3.5)	13.1 (9.6-16.5)*
Group D	5.5 (3.3-7.6)	56.4 (51.5-61.4)	2.9 (2.6-3.3)	12.9 (9.7-16.2)*

*indicates a significant difference across Peer Groups (Rao-Scott Chi-Square Test p<0.05).
C, D – This estimate should be interpreted with caution due to high sampling variability.

GEOGRAPHIC REGION

- In children ages 3-4 years, total screen time, adherence to screen time guidelines, electronic use while inactive, and electronic use before sleep did not significantly differ by geographic region in Ontario (Table 5).

Table 5: Total screen time, adherence to screen time guidelines, weekly electronic use while inactive, and electronic use before sleep by geographic region in children ages 3-4 years; Ontario, 2019.

Geographic region	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Toronto	5.8 (5.1-6.5)	53.6 (48.7, 58.4)	3.0 (2.7-3.3)	14.6 (11.8-17.5)
North West	6.1 (3.7-8.6)	51.6 (45.6, 57.6)	2.2 (1.0-3.5)	18.2[D] (6.7-29.8)
North East	4.9 (3.1-6.7)	54.5 (47.2, 61.8)	2.6 (1.9-3.4)	14.0[C] (7.6-20.4)
Eastern	5.9 (4.0-7.8)	59.0 (49.2, 68.8)	3.3 (2.8-3.8)	10.5[C] (6.3-14.7)
Central East	6.0 (4.6-7.3)	52.1 (38.7, 65.4)	3.3 (2.9-3.7)	13.7 (10.2-17.1)
Central West	6.3 (4.5-8.1)	57.3 (50.2, 64.4)	3.2 (2.8-3.7)	11.7[C] (7.9-15.5)
South West	5.6 (4.7-6.6)	54.8 (51.1-58.6)	2.8 (2.3-3.4)	9.9 (6.4-13.5)

C, D – This estimate should be interpreted with caution due to high sampling variability.

PUBLIC HEALTH UNIT

- In children ages 3-4 years, total screen time and adherence to screen time guidelines did not significantly differ across Public Health Units.
- Electronic use before sleep was not presented by Public Health Unit for children ages 3-4 years due to a high proportion of non-reportable estimates.

Table 6: Total screen time and adherence to screen time guidelines by Public Health Unit in children ages 3-4; Ontario, 2019.

Public Health Unit	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)
District of Algoma Health Unit	6.4[C] (3.2-9.6)	50.2[C] (32.1-68.4)
Brant County Health Unit	7.8 (5.3-10.2)	46.9[C] (26.9-66.8)
Durham Regional Health Unit	7.6 (5.2-10.0)	48.8 (35.3-62.4)
Grey Bruce Health Unit	5.0 (1.7-8.3)	57.5 (41.5-73.5)
Haldimand-Norfolk Health Unit	6.1 (3.2-8.9)	54.5[C] (37.7-71.4)
Haliburton, Kawartha, Pine Ridge District Health Unit	6.6 (4.0-9.1)	49.8 (36.5-63.2)
Halton Regional Health Unit	5.7 (3.3-8.2)	53.4 (43.5-63.3)
City of Hamilton Health Unit	6.4 (3.7-9.1)	51.0[C] (34.6-67.5)
Hastings and Prince Edward Counties Health Unit	6.2 (3.8-8.7)	51.4[C] (35.3-67.5)
Chatham-Kent Health Unit	4.7 (2.8-6.7)	62.8 (50.3-75.4)
Kingston, Frontenac and Lennox and Addington Health Unit	5.7 (3.8-7.7)	62.1 (46.8-77.4)
Lambton Health Unit	7.2 (4.9-9.6)	47.3[C] (28.4-66.2)
Leeds, Grenville and Lanark District Health Unit	5.0 (3.1-7.0)	59.0 (42.4-75.5)
Middlesex-London Health Unit	5.9 (3.4-8.4)	56.3 (39.7-72.8)
Niagara Regional Area Health Unit	10.1 (6.6-13.6)	46.5[C] (30.7-62.2)
North Bay Parry Sound District Health Unit	4.0[C] (1.8-6.3)	67.0 (48.4-85.6)
Northwestern Health Unit	4.7 (2.7-6.8)	68.6 (52.6-84.7)
Huron Perth Health Unit	4.8[C] (1.6-8.1)	60.2[C] (40.7-79.8)
City of Ottawa Health Unit	5.7 (3.5-7.9)	55.4 (44.3-66.4)
Peel Regional Health Unit	6.4 (3.9-8.8)	51.1 (44.2-58.0)

Public Health Unit	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)
Peterborough County-City Health Unit	6.1 (2.6-9.5)	53.4[C] (35.3-71.4)
Porcupine Health Unit	5.0[C] (1.0-9.1)	61.3 (44.6-78.0)
Renfrew County and District Health Unit	7.3 (4.7-10.0)	43.3[D] (20.8-65.9)
Eastern Ontario Health Unit	6.6 (4.5-8.6)	49.6[C] (32.1-67.2)
Simcoe Muskoka Health Unit	5.9 (3.6-8.1)	53.2 (43.3-63.1)
Sudbury and District Health Unit	5.7 (1.9-9.6)	55.4[C] (36.1-74.6)
Thunder Bay District Health Unit	9.8 (7.1-12.6)	45.8[C] (28.7-62.9)
Timiskaming Health Unit	NR	NR
Waterloo Health Unit	6.0 (3.7-8.3)	54.4 (41.1-67.8)
Wellington-Dufferin-Guelph Health Unit	6.1 (3.6-8.7)	51.5 (40.5-62.6)
Windsor-Essex County Health Unit	6.2 (3.5-8.9)	51.6 (39.3-63.9)
York Regional Health Unit	5.0 (3.4-6.6)	61.6 (50.6-72.5)
Southwestern Public Health	4.8 (2.0-7.7)	69.3 (57.0-81.7)
City of Toronto Health Unit	5.8 (5.1-6.5)	54.8 (51.1-58.6)

C, D – This estimate should be interpreted with caution due to high sampling variability.
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

Children ages 5-11 years

- Most children ages 5-11 years [65.9% (95% CI: 64.6-67.2)] adhered to screen time guidelines. Median screen time was 1.4 hours daily. Only 22.3% (95% CI: 21.1-23.5) used electronics before sleep (Table 1).

HIGHEST PARENTAL EDUCATION, HOUSEHOLD INCOME, AND LOW INCOME CUT-OFF (LICO)

- The percentage of children who adhered to screen times guidelines and used electronics before sleep significantly differed across highest parental educational attainment (Figure 5; Table 6).

- Total screen time increased with increased income, with the exception of the top income bracket (>$200,000) (Table 6). Children living in households with income in the first quintile had lower total screen time and inactive electronic use times compared to children living in higher income quintiles (Figure 6; Table 6).

- Adherence to screen time guidelines and electronic device use before sleep also differed significantly across income quintiles (Figure 7; Table 6)

Figure 5: Adherence to screen time guidelines and used electronics before sleep by parental education level in children ages 5-11 years; Ontario, 2019.

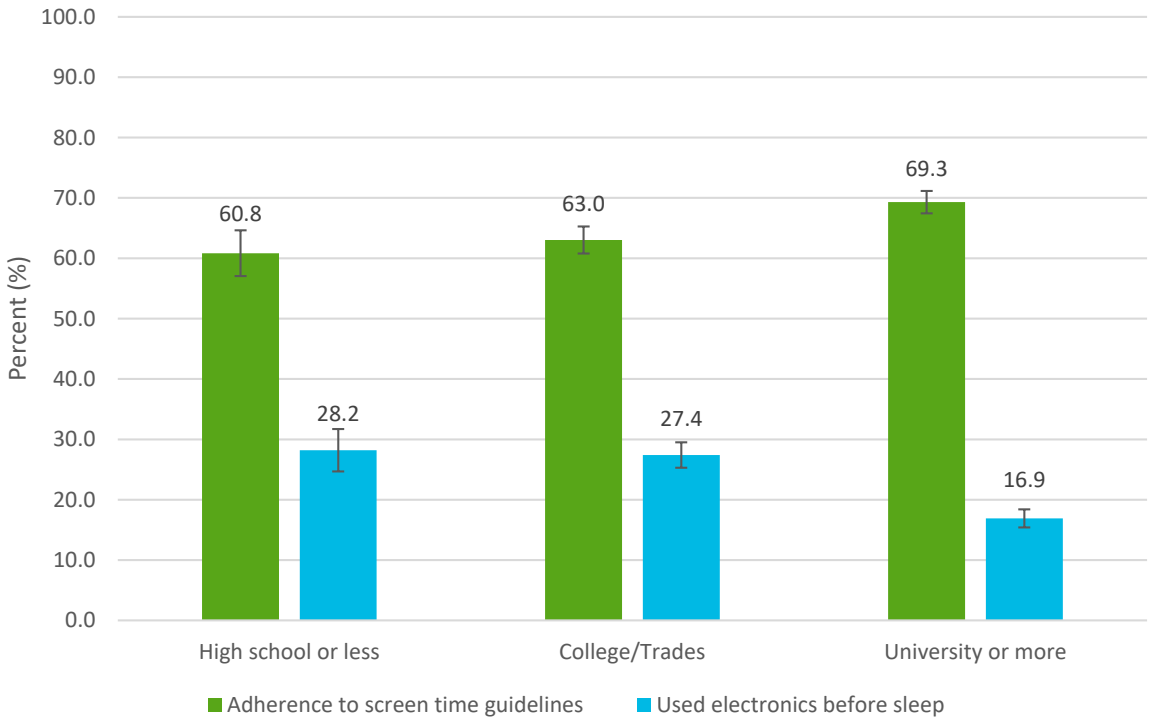


Figure 6: Total screen time and electronic use while inactive by income quintiles in children ages 5-11 years; Ontario, 2019.

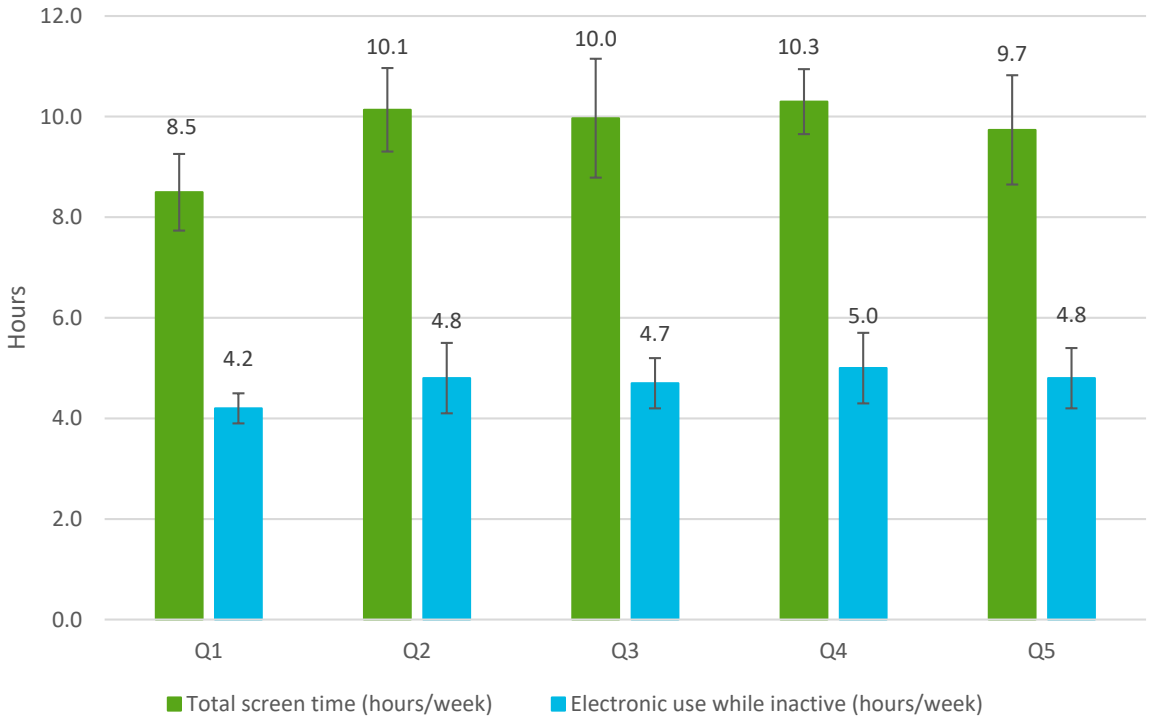


Figure 7: Adherence to screen time guidelines and used electronics before sleep by income quintile in children ages 5-11 years; Ontario, 2019.

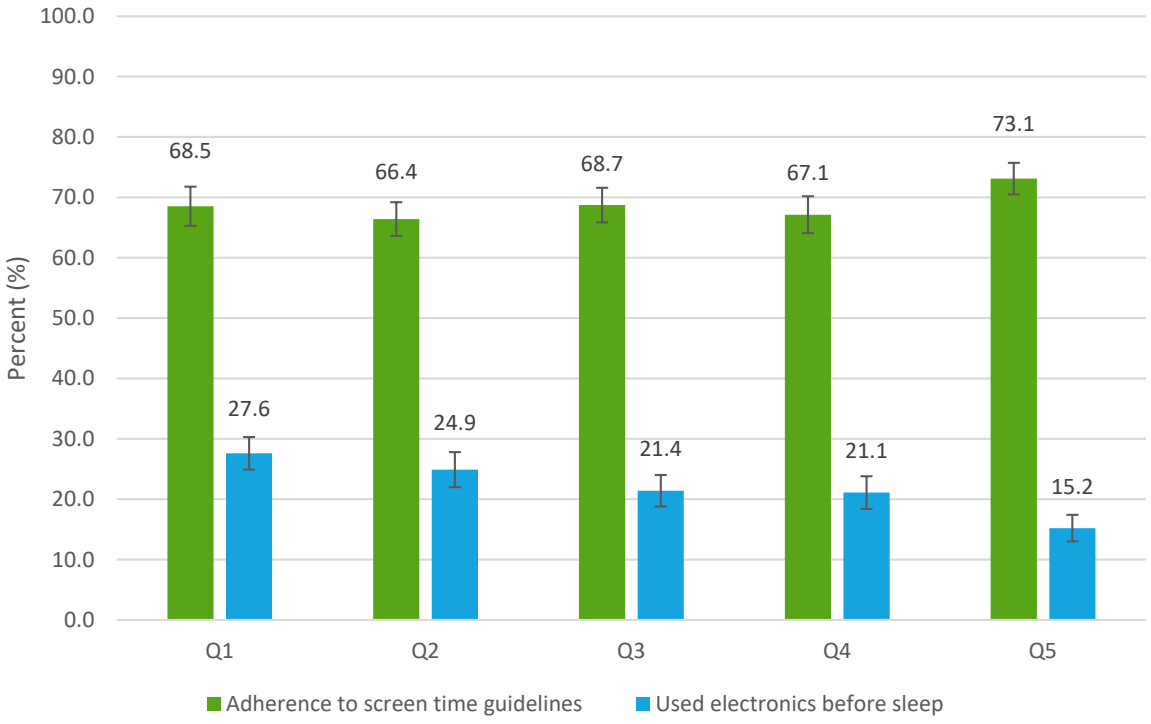


Figure 8: Total screen time and electronic use while inactive by LICO in children ages 5-11 years; Ontario, 2019.

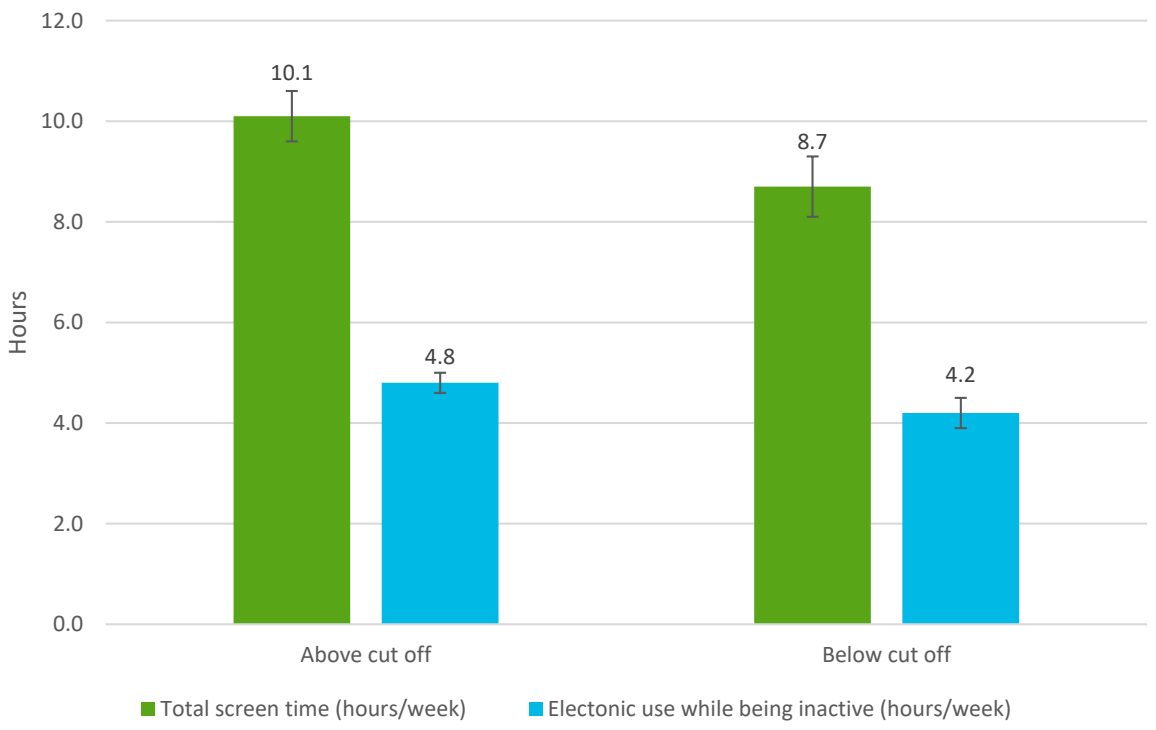


Table 7: Weekly electronic use while inactive, adherence to screen time guidelines, and electronic use before sleep by highest parental education and income in children ages 5-11 years; Ontario, 2019.

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Highest parental education				
High school or less	10.1 (9.0-11.2)	60.8 (57.1-64.6)*	4.6 (4.0-5.3)	28.2 (24.7-31.7)*
College/Trades	10.2 (9.6-10.8)	63.0 (60.8-65.3)*	4.6 (4.4-4.9)	27.4 (25.3-29.4)*
University or more	9.5 (8.8-10.2)	69.3 (67.4-71.1)*	4.7 (4.4-5.0)	16.9 (15.4-18.4)*
Household Income				
<$24,999	8.8 (7.7-9.9)	64.7 (59.9-69.4)	4.4 (3.8-4.9)	29.5 (24.9-34.1)*
$25,000 to 49,999	9.0 (8.0-10.0)	65.3 (62.1-68.6)	4.2 (3.9-4.6)	26.6 (23.4-29.8)*

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
$50,000 to 74,999	10.1 (9.3-11.0)	63.2 (59.8-66.6)	4.8 (4.1-5.5)	26.0 (22.7-29.2)*
$75,000 to 99,999	10.0 (8.7-11.2)	65.1 (61.5-68.7)	4.6 (4.1-5.1)	20.5 (17.4-23.5)*
$100,000 to 149,999	10.2 (9.3-11.0)	65.6 (62.6-68.5)	4.9 (4.2-5.5)	21.8 (19.3-24.4)*
$150,000 to 199,999	10.2 (9.2-11.1)	66.8 (63.5-70.2)	4.7 (4.1-5.4)	16.3 (13.8-18.8)*
$200,000 and higher	9.6 (8.6-10.6)	71.2 (67.7-74.6)	4.9 (4.1-5.6)	16.3 (13.5-19.2)*
Income Quintiles				
Q1	8.5 (7.7-9.3)	65.3 (62.0-68.5)*	4.1 (3.8-4.4)σ	28.7 (25.6-31.8)*
Q2	10.1 (9.3-11.0)	63.6 (60.8-66.4)*	4.8 (4.1-5.5)σ	25.5 (22.8-28.2)*
Q3	10.0 (8.8-11.2)	65.9 (63.0-68.7)*	4.6 (4.2-5.0)σ	20.3 (17.8-22.7)*
Q4	10.3 (9.7-10.9)	64.1 (61.0-67.1)*	5.0 (4.3-5.6)σ	22.2 (19.5-24.8)*
Q5	9.7 (8.6-10.8)	70.5 (67.9-73.1)*	4.7 (4.3-5.2)σ	15.4 (13.4-17.4)*
Low Income Cut-Off (LICO)				
Above cut off	10.1 (9.6-10.6)	66.0 (64.5-67.5)	4.8 (4.6-5.0)	20.7 (19.4-22.0)
Below cut off	8.7 (8.0-9.3)σ	65.4 (62.5-68.2)	4.2 (3.9-4.5)σ	27.7 (24.9-30.4)*

*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05).
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response p<0.05 or T-Test on Box-Cox transformed response p<0.05 for socio-demographics with two levels).

SEX AT BIRTH, RACE AND ETHNIC ORIGIN, INDIGENOUS IDENTITY, AND IMMIGRATION STATUS

- In children aged 5-11 years, boys spent significantly more time using electronics while inactive and had higher total screen time compared to girls (Figure 9; Table 7).
- Boys had lower adherence to screen time guidelines (Figure 10), however the proportion of girls who used electronics before sleep was significantly greater than boys (Figure 10; Table 7).

Figure 9: Total screen time and weekly time spent using electronics while inactive by sex at birth in children ages 5-11 years; Ontario, 2019.

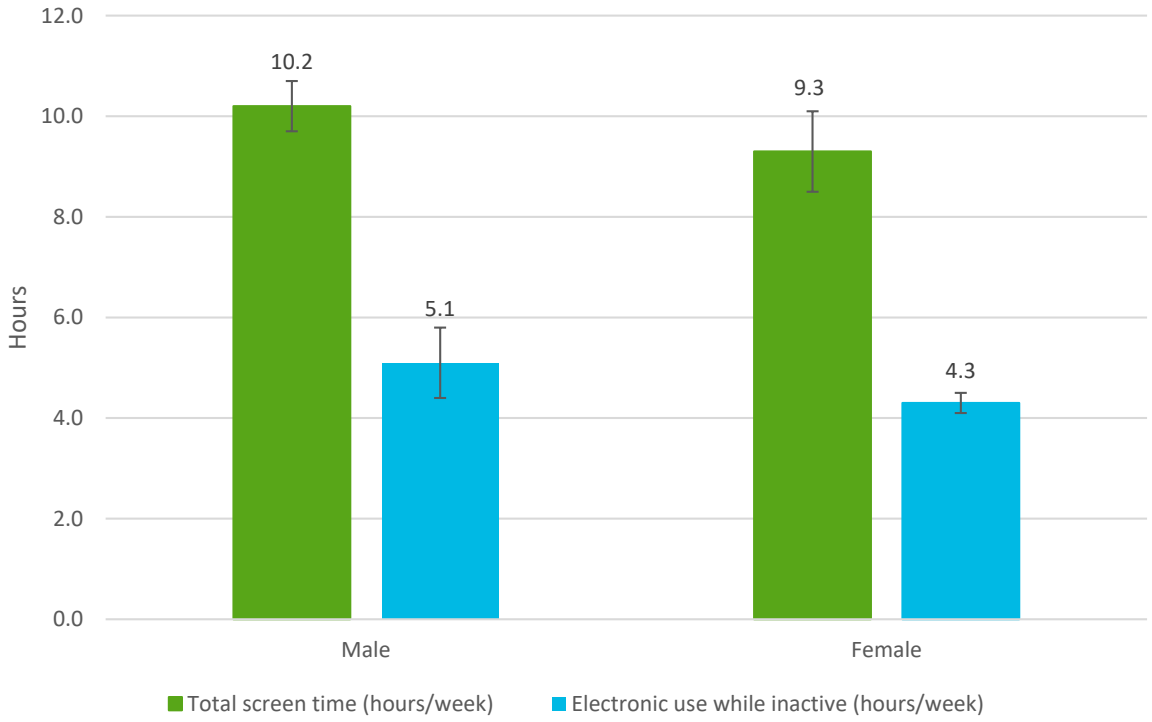
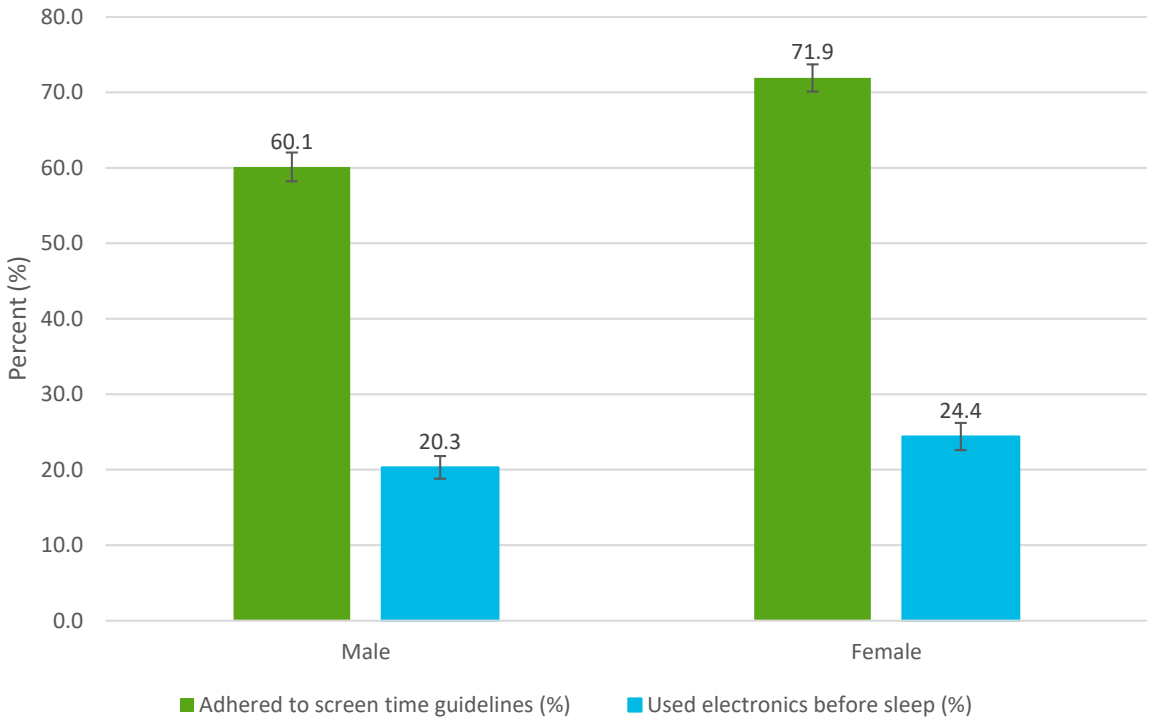
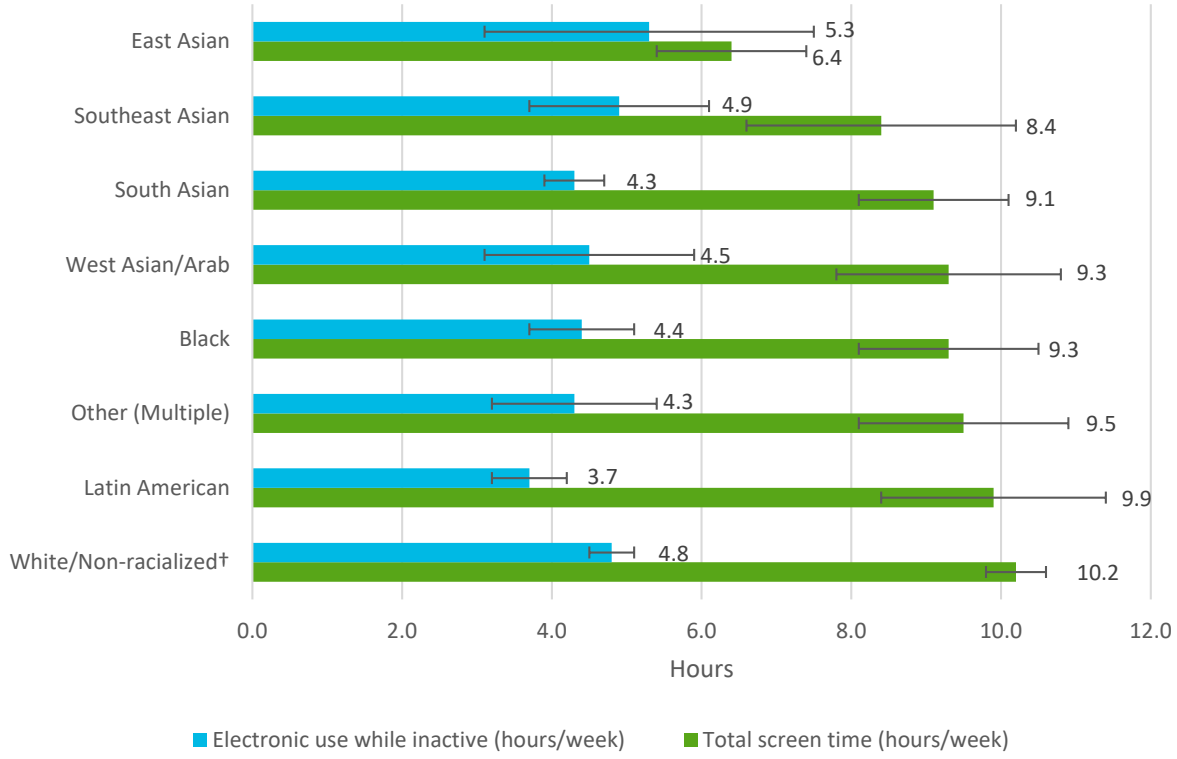


Figure 10: Adherence to screen time guidelines and electronic use before bed by sex at birth in children ages 5-11 years; Ontario, 2019.



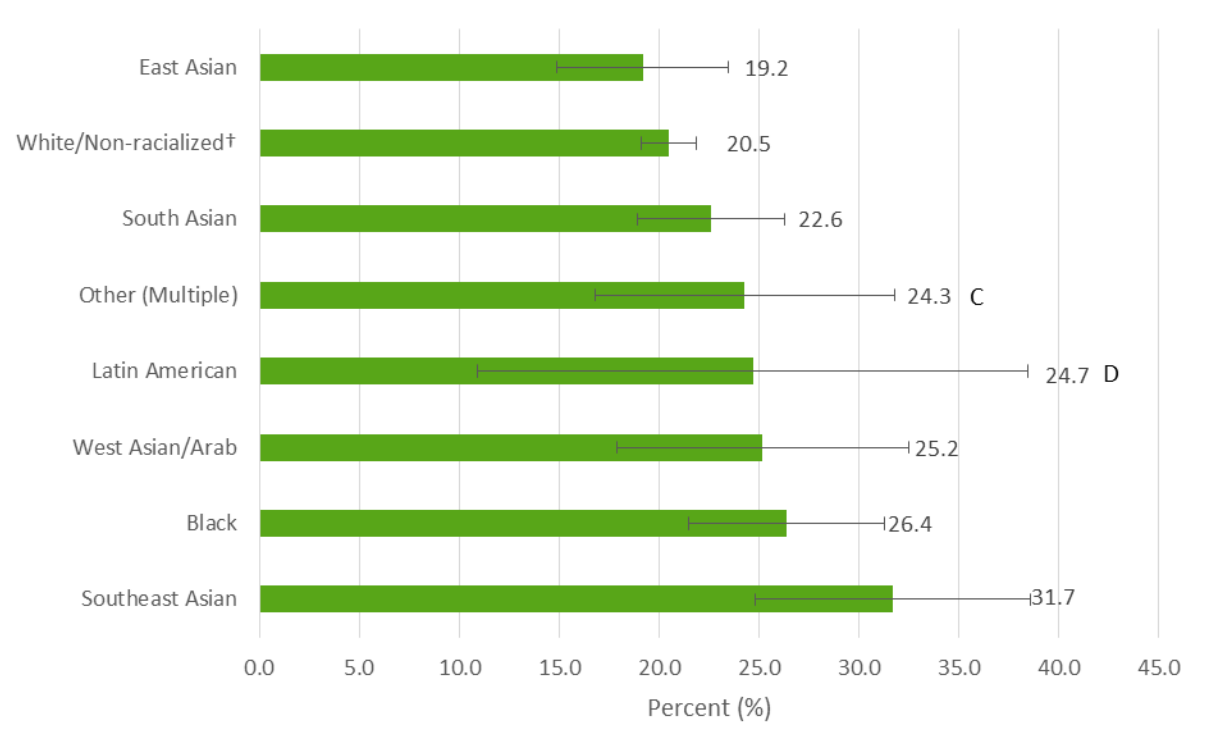
- Children identified as Latin American, Southeast Asian, and White/Non-racialized spent the longest time using electronics while inactive. Those identified as East Asian spent the shortest time using electronics while inactive. The greatest proportion of children who used electronics before sleep was observed in those identified as Southeast Asian/Filipino whereas the smallest proportion was observed in those identified as East Asian (Figure 8; Table 7).

Figure 11: Total screen time and used electronics while inactive by race and ethnic origin in children ages 5-11 years; Ontario, 2019.



†Excludes those identifying as Indigenous.

Figure 12: Electronic device use before sleep by race and ethnic origin in children ages 5-11 years; Ontario, 2019.



†Excludes those identifying as Indigenous.
C, D – This estimate should be interpreted with caution due to high sampling variability.

- A significantly greater proportion of children identified as Indigenous used electronics before sleep than children identified as non-Indigenous (Figure 12; Table 8).
- There were no significant differences for any sedentary behaviour indicators and immigration status.

Figure 13: Used electronics before sleep by Indigenous identity in children ages 5-11 years; Ontario, 2019.

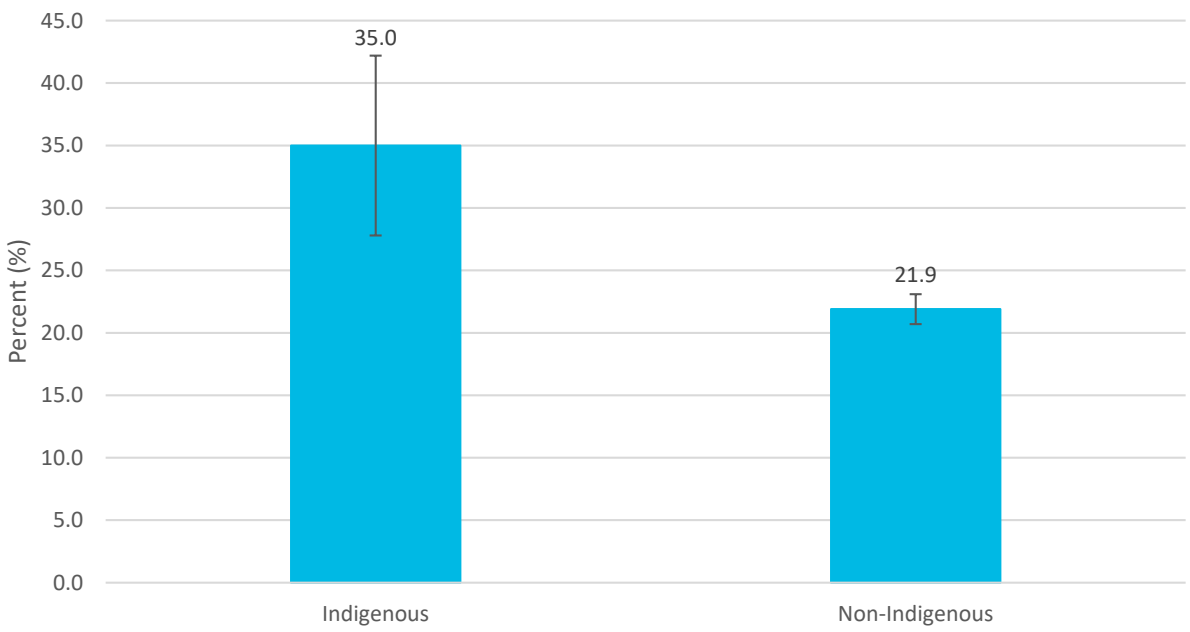


Table 8: Total screen time, adherence to screen time guidelines, weekly electronic use while inactive, and electronic use before sleep by sex at birth, race and ethnic origin, Indigenous identity, and immigration status in children ages 5-11 years; Ontario, 2019.

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Sex at birth				
Male	10.2 (9.7-10.7)	60.1 (58.2-62.0)*	5.1 (4.4-5.7)σ	20.3 (18.8-21.9)*
Female	9.3 (8.5-10.1)	71.9 (70.1-73.8)*	4.3 (4.1-4.5)σ	24.4 (22.6-26.2)*
Race and ethnic origin				
Black	9.3 (8.1-10.5)	67.4 (62.1-72.7)	4.4 (3.7-5.0)σ	26.4 (21.5-31.3)*
East Asian	6.4 (5.4-7.4)	73.2 (68.5-78.0)	3.7 (3.2-4.2)σ	19.2 (14.9-23.4)*
Latin American	9.9 (8.4-11.4)	76.8 (66.5-87.2)	5.3 (3.1-7.4)σ	24.7[D] (10.9-38.5)*
Other (Multiple)	9.5 (8.1-10.9)	69.3 (61.4-77.1)	4.3 (3.2-5.4)σ	24.3[C] (16.9-31.8)*
South Asian	9.1 (8.1-10.2)	68.2 (64.3-72.1)	4.3 (3.9-4.8)σ	22.6 (18.9-26.3)*

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Southeast Asian	8.4 (6.9-9.9)	64.8 (57.9-71.6)	4.9 (3.7-6.1)σ	31.7 (24.8-38.6)*
West Asian/Arab	9.3 (7.8-10.8)	65.0 (57.2-72.7)	4.5 (3.1-5.9)σ	25.2 (17.9-32.4)*
White/Non-racialized†	10.2 (9.8-10.6)	64.5 (62.8-66.1)	4.8 (4.5-5.2)σ	20.5 (19.1-21.9)*
Indigenous identity				
Indigenous	10.2 (9.0-11.3)	63.1 (56.2-70.0)	5.3 (4.0-6.6)	35.0 (27.7-42.2)*
Non-Indigenous	10.0 (8.8-11.2)	66.0 (64.6-67.3)	4.6 (4.5-4.8)	21.9 (20.7-23.1)*
Immigration status				
Non-immigrant	10.1 (9.3-10.8)	65.5 (64.1-66.9)	4.7 (4.5-4.8)	22.5 (21.2-23.8)
Immigrant	8.2 (7.2-9.1)	68.8 (64.2-73.4)	4.5 (3.8-5.3)	20.4 (16.4-24.4)
Non-permanent resident	5.9[C] (3.2-8.6)	79.1 (63.1-95.2)	4.7 (2.1-7.3)	NR

†Excludes those identifying as Indigenous.
*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05).
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response p<0.05 or T-Test on Box-Cox transformed response p<0.05 for socio-demographics with two levels).
C, D – This estimate should be interpreted with caution due to high sampling variability.
NR – This estimate could not be released as per Statistics Canada guidelines on unacceptable estimate quality (E)

PEER GROUP

- Total screen time, adhering to screen time guidelines and electronic use while inactive all significantly differed by Statistics Canada Peer Group. Those living in Peer Groups G&H spent the least amount of time using electronics. Children living in Peer Groups B, C, and D had similar total and inactive electronic use times (Figure 14; Table 9).

Figure 14: Total screen time, adherence to screen time guidelines, and weekly electronic use while inactive by Statistics Canada peer group in children ages 5-11 years; Ontario, 2019.

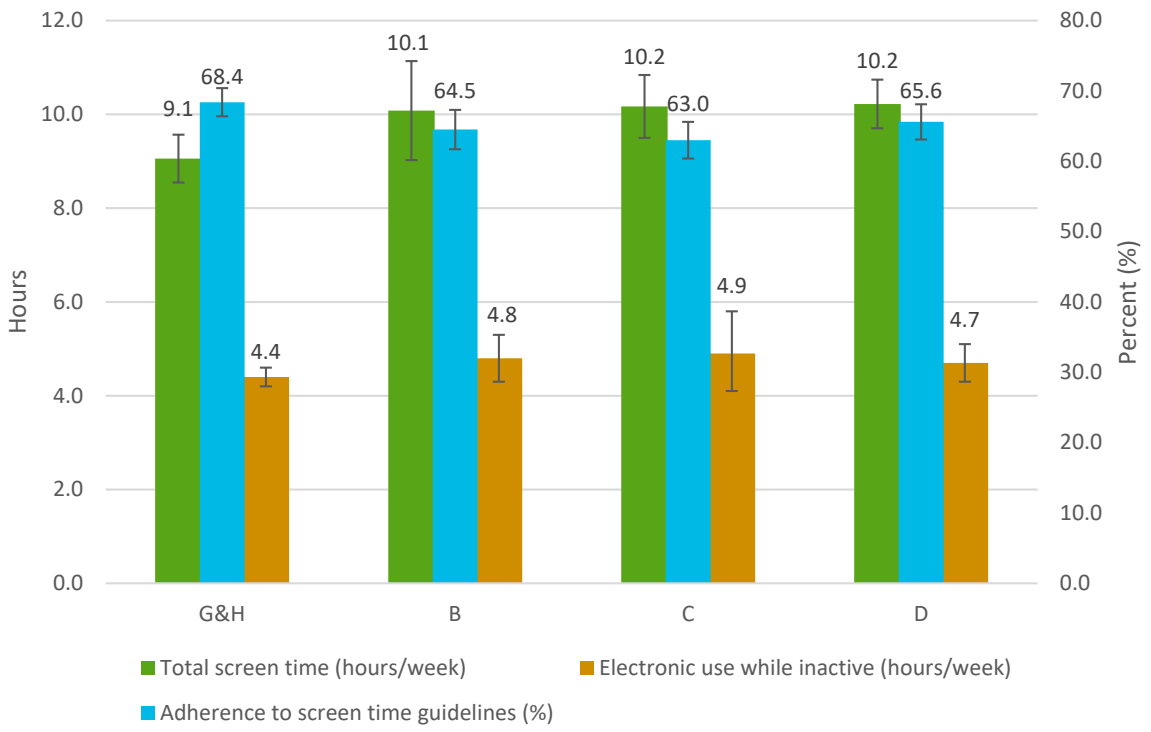


Table 9: Total screen time, weekly electronic use while inactive, adherence to screen time guidelines, and electronic use before sleep by Statistics Canada peer group in children ages 5-11 years; Ontario, 2019.

Peer Group	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Group G&H	9.1 (8.5-9.6)σ	68.4 (66.4-70.4)*	4.4 (4.2-4.6)σ	21.6 (19.7-23.4)
Group B	10.1 (9.0-11.1)σ	64.5 (61.7-67.3)*	4.8 (4.3-5.3)σ	22.2 (19.8-24.6)
Group C	10.2 (9.5-10.8)σ	63.0 (60.4-65.6)*	4.9 (4.1-5.8)σ	23.1 (20.8-25.5)
Group D	10.2 (9.7-10.7)σ	65.6 (63.1-68.1)*	4.7 (4.3-5.1)σ	23.7 (21.4-25.9)

σ indicates a significantly different mean in at least one Peer Group (ANOVA on Box-Cox transformed response $p<0.05$).
*indicates a significant difference across Statistics Canada Peer Groups (Rao-Scott Chi-Square Test $p<0.05$).

GEOGRAPHIC REGION

- Total screen time, adherence to screen time guidelines and inactive electronic use significantly differed by geographic region. Children living in Toronto spent the least amount of time using electronics while inactive and total screen time and had the greatest adherence to screen time guidelines. Children living in the North West and Eastern regions had similar electronic use times to each other. Likewise, children living in the North East, Central East, Central West, and South West had similar electronic use times to each other (Figure 17; Table 10).

Figure 15: Total screen time, adherence to screen time guidelines, and time spent using electronics while inactive by geographic region in children ages 5-11 years; Ontario, 2019.

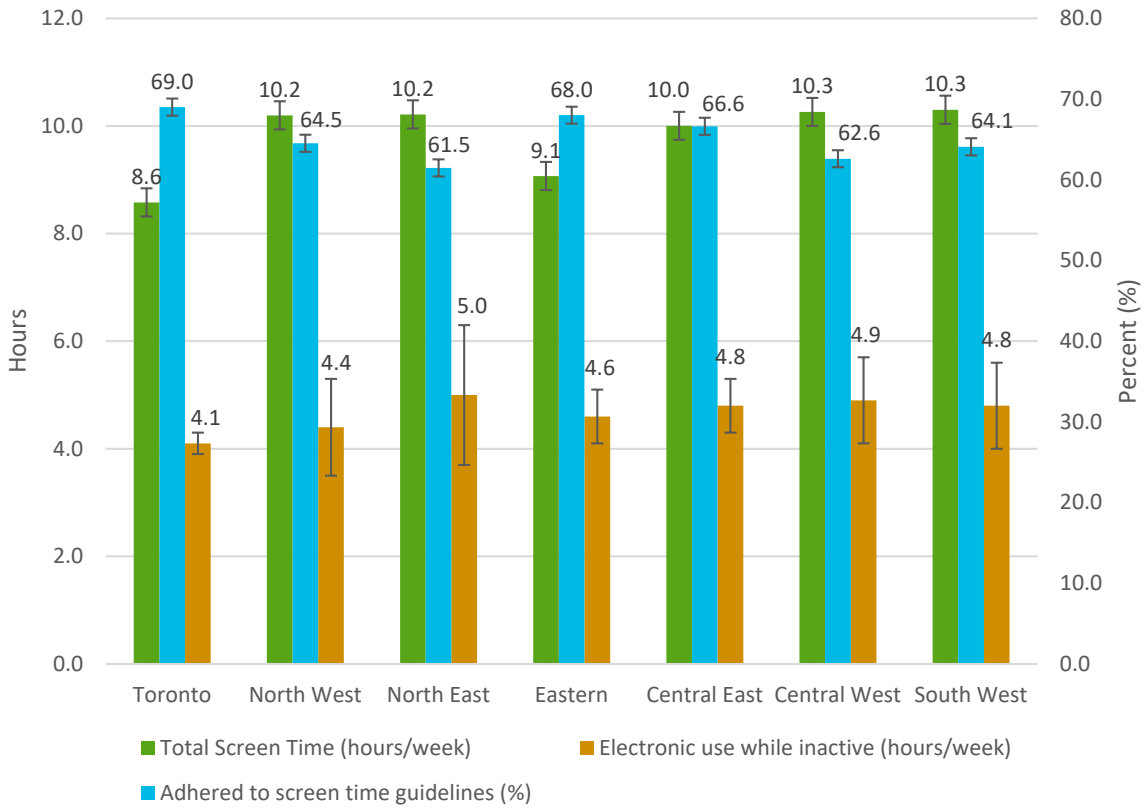


Table 10: Total screen time, weekly electronic use while inactive, adherence to screen time guidelines, and electronic use before sleep by geographic region in children ages 5-11 years; Ontario, 2019.

Geographic region	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Toronto	8.6 (8.1-9.1)	69.0 (66.8-71.2)*	4.1 (3.9-4.3)σ	20.3 (18.3-22.3)
North West	10.2 (9.0-11.4)	64.5 (58.0-71.0)*	4.4 (3.5-5.2)σ	25.3 (19.4-31.2)
North East	10.2 (9.3-11.2)	61.5 (56.5-66.4)*	5.0 (3.8-6.3)σ	22.7 (18.3-27.1)
Eastern	9.1 (8.4-9.8)	68.0 (64.7-71.3)*	4.6 (4.1-5.1)σ	22.3 (19.1-25.5)
Central East	10.0 (8.8-11.2)	66.6 (64.1-69.2)*	4.8 (4.3-5.3)σ	24.1 (21.7-26.6)
Central West	10.3 (9.5-11.0)	62.6 (59.4-65.9)*	4.9 (4.1-5.7)σ	22.2 (19.5-25.0)
South West	10.3 (9.5-11.1)	64.1 (60.5-67.7)*	4.8 (4.0-5.6)σ	20.3 (17.3-23.4)

*indicates a significant difference across regions (Rao-Scott Chi-Square Test p<0.05).
σ indicates a significantly different mean in at least one region (ANOVA on Box-Cox transformed response p<0.05).

PUBLIC HEALTH UNIT

- In children ages 5-11 years, total screen time and adherence to screen time guidelines significantly differed across Public Health Units.

Table 11: Total screen time and adherence to screen time guidelines, by Public Health Unit in children ages 5-11 years; Ontario, 2019.

Public Health Unit	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)
District of Algoma Health Unit	10.3 (8.6-11.9)σ	62.3 (52.3-72.3)
Brant County Health Unit	9.0 (7.0-11.0)σ	63.3 (54.0-72.6)
Durham Regional Health Unit	10.2 (8.9-11.4)σ	65.1 (58.0-72.3)
Grey Bruce Health Unit	10.2 (8.9-11.5)σ	69.2 (61.4-77.1)
Haldimand-Norfolk Health Unit	10.0 (8.6-11.5)σ	65.7 (56.2-75.3)
Haliburton, Kawartha, Pine Ridge District Health Unit	9.0 (7.7-10.4)σ	66.1 (59.5-72.7)

Public Health Unit	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)
Halton Regional Health Unit	10.2 (9.2-11.2)σ	66.3 (61.2-71.3)
City of Hamilton Health Unit	11.1 (9.0-13.1)σ	55.4 (44.9-66.0)
Hastings and Prince Edward Counties Health Unit	10.5 (9.3-11.7)σ	62.3 (54.9-69.8)
Chatham-Kent Health Unit	9.7 (8.4-10.9)σ	65.0 (58.2-71.8)
Kingston, Frontenac and Lennox and Addington Health Unit	10.0 (8.8-11.2)σ	62.6 (55.4-69.8)
Lambton Health Unit	10.2 (8.7-11.6)σ	64.2 (55.3-73.2)
Leeds. Grenville and Lanark District Health Unit	10.4 (8.9-11.9)σ	65.7 (56.9-74.4)
Middlesex-London Health Unit	11.0 (9.1-12.9)σ	59.3 (49.4-69.1)
Niagara Regional Area Health Unit	10.3 (8.7-11.9)σ	61.6 (52.9-70.2)
North Bay Parry Sound District Health Unit	8.0 (5.8-10.2)σ	71.1 (61.6-80.7)
Northwestern Health Unit	10.0 (8.9-11.1)σ	71.5 (65.5-77.4)
Huron Perth Health Unit	10.2 (8.7-11.7)σ	65.3 (56.4-74.2)
City of Ottawa Health Unit	8.2 (7.3-9.1)σ	70.0 (64.9-75.2)
Peel Regional Health Unit	9.7 (8.6-10.8)σ	64.8 (61.0-68.5)
Peterborough County-City Health Unit	10.4 (8.6-12.2)σ	61.3 (51.1-71.4)
Porcupine Health Unit	10.6 (7.8-13.4)σ	54.0 (43.2-64.8)
Renfrew County and District Health Unit	10.0 (8.0-12.1)σ	69.2 (57.6-80.9)
Eastern Ontario Health Unit	10.0 (8.6-11.5)σ	68.2 (58.9-77.5)
Simcoe Muskoka Health Unit	10.2 (9.3-11.1)σ	64.1 (58.9-69.3)
Sudbury and District Health Unit	10.3 (8.5-12.1)σ	59.8 (50.0-69.6)
Thunder Bay District Health Unit	10.3 (8.6-12.0)σ	61.4 (52.4-70.5)
Timiskaming Health Unit	11.5 (7.6-15.3)σ	53.7[C] (34.5-72.9)
Waterloo Health Unit	10.1 (8.4-11.7)σ	63.4 (55.7-71.1)

Public Health Unit	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)
Wellington-Dufferin-Guelph Health Unit	10.3 (9.1-11.5)σ	65.3 (59.6-71.0)
Windsor-Essex County Health Unit	9.7 (8.4-11.0)σ	67.0 (60.9-73.1)
York Regional Health Unit	9.2 (7.8-10.5)σ	71.9 (66.2-77.6)
Southwestern Public Health	10.4 (9.5-11.2)σ	64.6 (58.3-70.9)
City of Toronto Health Unit	8.6 (8.1-9.1)σ	69.0 (66.8-71.2)

C – This estimate should be interpreted with caution due to high sampling variability.
σ indicates a significantly different mean in at least one Public Health Unit (ANOVA on Box-Cox transformed response $p<0.05$).

Youth ages 12-17 years

- Approximately, 56.7% (55.2-58.2) of youth adhered to screen time guidelines of less than 2 hours a day. Median inactive electronic use time was 76.3 minutes daily. Most youth, 74.5% (95% CI: 73.1-75.9), used electronics before sleep.

HIGHEST PARENTAL EDUCATION, HOUSEHOLD INCOME, AND LOW-INCOME CUT-OFF (LICO)

- A significantly smaller percentage of youth with parents educated at the University or more level used electronics before sleep than those with parents educated at the College/Trades level (Figure 16; Table 10).

Figure 16: Total screen time by highest parental education in youth ages 12-17 years; Ontario, 2019.

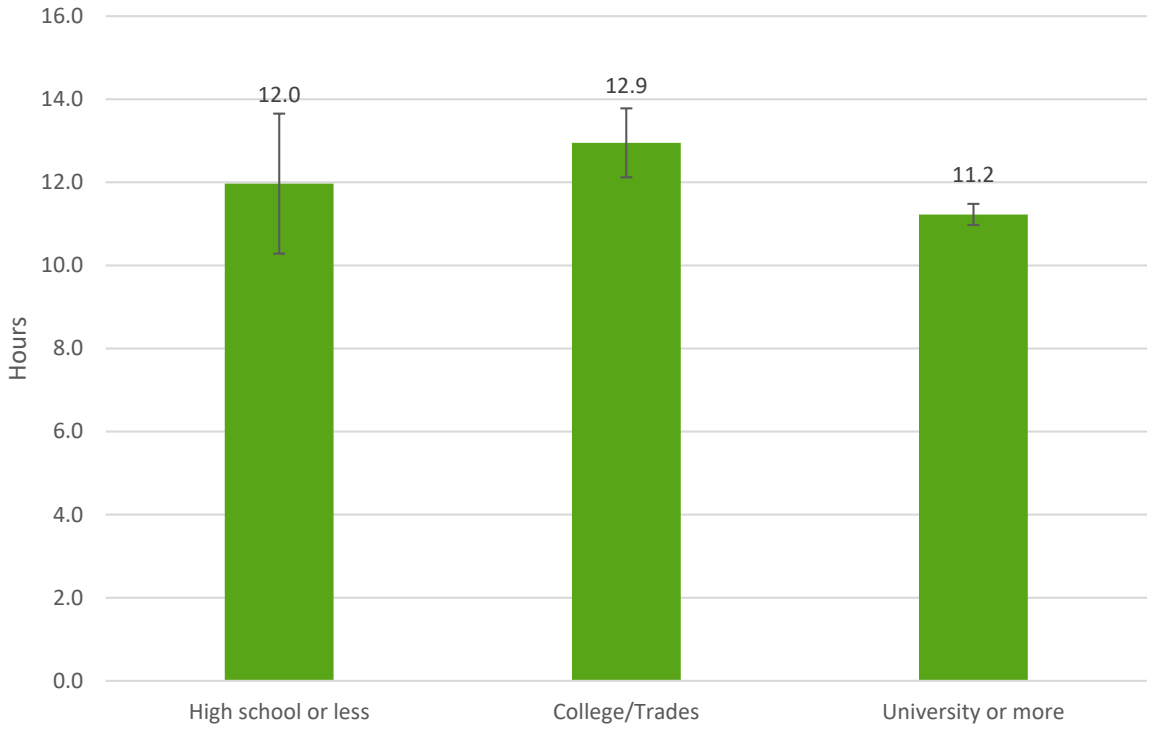


Figure 17: Adherence to screen time guidelines and electronic use before sleep by highest parental education in youth ages 12-17 years; Ontario, 2019.

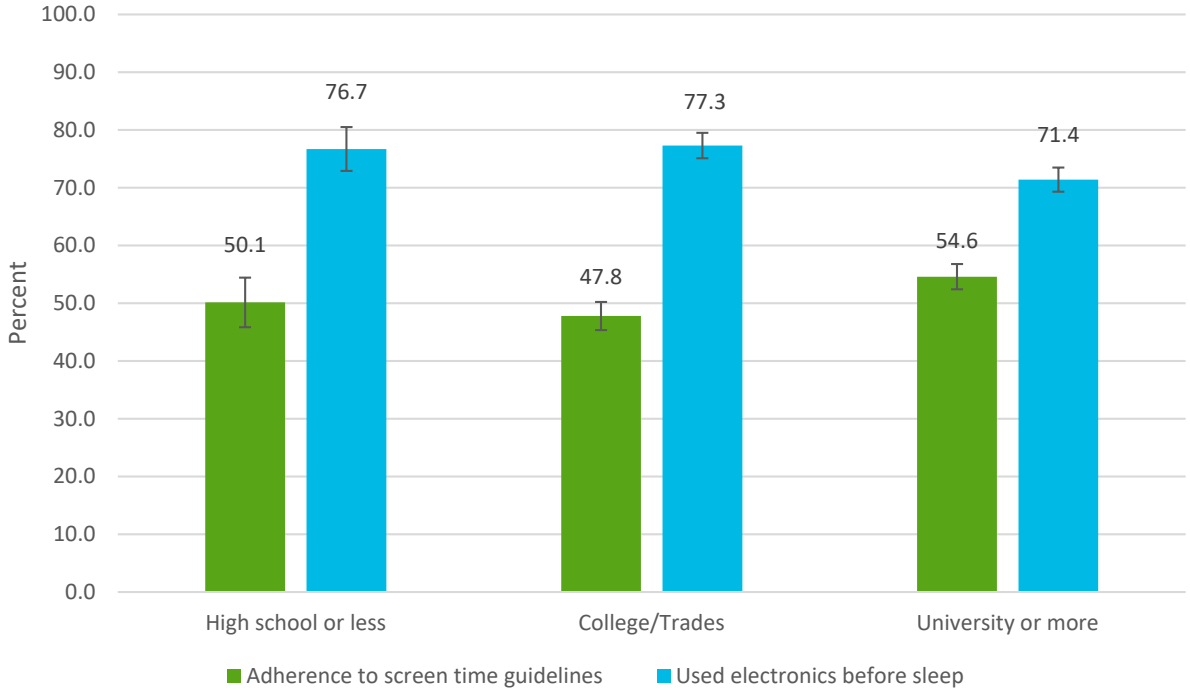
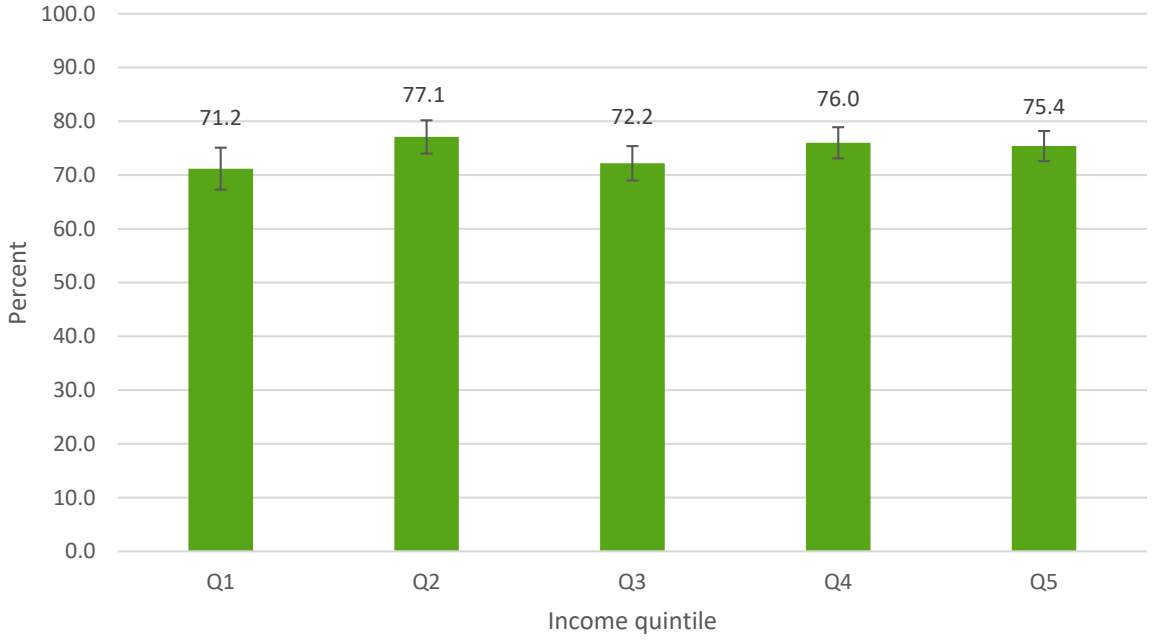


Figure 18: Used electronics before sleep by income quintiles in youth ages 12-17 years; Ontario, 2019.



- Youth living in households above the low income cut-off spent significantly more time using electronics inactively and a significantly smaller percentage adhered to screen time guidelines compared to those below the low income cut-off. Additionally, a significantly greater proportion of those above the low income cut-off used electronics before sleep compared to those below the low income cut-off (Figure 19; Table 10).

Figure 19: Electronic use while inactive and electronic use before sleep by LICO in youth ages 12-17 years; Ontario, 2019.

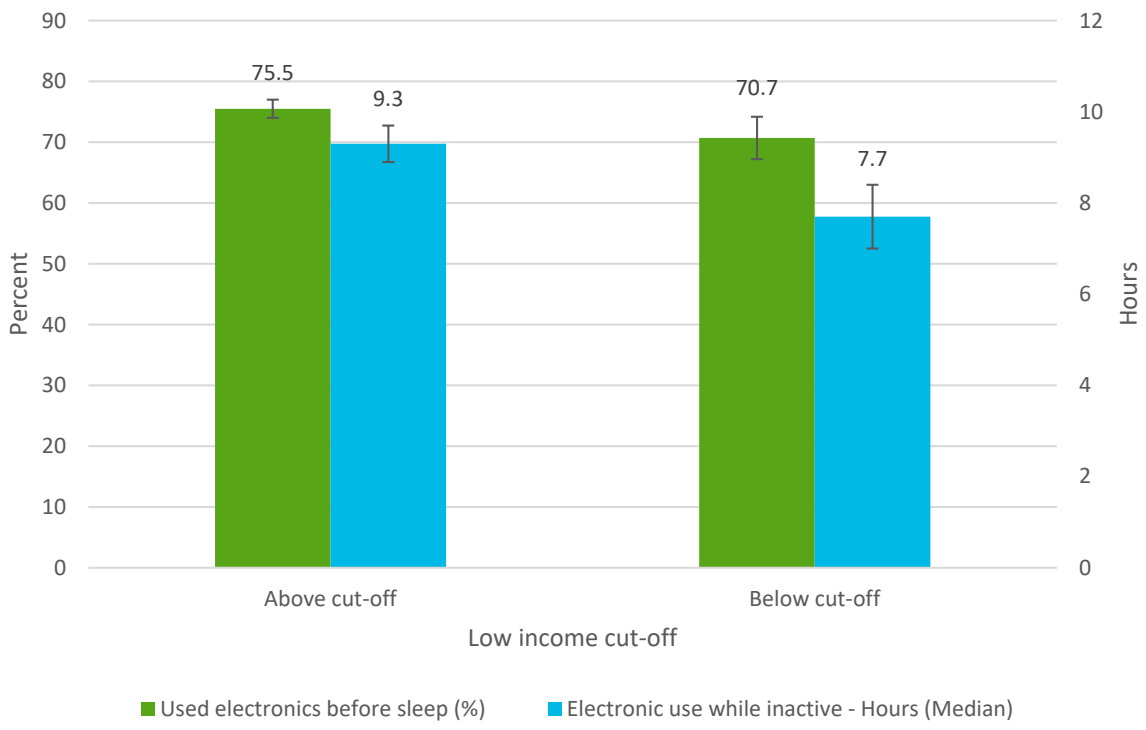


Table 12: Weekly electronic use while inactive, adherence to screen time guidelines, and electronic use before sleep by highest parental education and income in youth ages 12-17 years; Ontario, 2019.

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Highest parental education				
High school or less	12.0 (10.3-13.7)*	50.1 (45.8-54.4)*	8.6 (7.7-9.6)	76.7 (73.0-80.5)*
College/Trades	12.9 (12.1-13.8)*	47.8 (45.3-50.2)*	9.3 (8.7-9.8)	77.3 (75.1-79.5)*
University or more	11.2 (11.0-11.5)*	54.6 (52.4-56.8)*	8.7 (8.3-9.1)	71.4 (69.4-73.5)*
Household Income				
<$24,999	11.1 (9.6-12.5)	54.9 (48.8-60.9)	7.3 (6.1-8.5)	69.8 (64.3-75.3)
$25,000 to 49,999	11.2 (10.3-12.0)	53.5 (49.3-57.6)	8.7 (7.8-9.5)	75.1 (71.2-79.0)

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
$50,000 to 74,999	11.0 (10.3-11.8)	54.5 (50.2-58.8)	8.7 (7.8-9.5)	76.5 (72.7-80.2)
$75,000 to 99,999	12.1 (10.5-13.7)	49.8 (45.6-53.9)	9.3 (8.4-10.2)	72.5 (68.7-76.3)
$100,000 to 149,999	12.9 (11.8-14.1)	47.7 (44.3-51.0)	9.5 (8.7-10.2)	75.4 (72.7-78.1)
$150,000 to 199,999	11.8 (10.6-12.9)	51.2 (47.1-55.3)	9.2 (8.4-10.0)	76.5 (73.1-79.8)
$200,000 and higher	11.6 (10.8-12.3)	52.6 (48.7-56.5)	8.8 (8.1-9.6)	73.4 (69.6-77.2)
Income Quintiles				
Q1	11.2 (10.4-12.0)	53.9 (49.7-58.0)	7.7 (6.9-8.5)σ	71.2 (67.4-75.1)*
Q2	11.0 (10.5-11.5)	54.4 (50.8-58.0)	9.0 (8.3-9.7)σ	77.1 (74.1-80.2)*
Q3	11.9 (10.6-13.2)	50.5 (47.1-53.9)	9.2 (8.5-9.9)σ	72.2 (69.1-75.4)*
Q4	13.1 (11.9-14.3)	47.4 (43.9-50.9)	9.6 (8.8-10.4)σ	76.0 (73.1-78.8)*
Q5	11.7 (11.0-12.4)	51.8 (48.7-54.9)	9.0 (8.4-9.6)σ	75.4 (72.6-78.2)*
Low Income Cut-Off (LICO)				
Above cut off	11.9 (11.2-12.5)	50.7 (49.0-52.4)	9.3 (8.9-9.6)σ	75.5 (74.0-77.0)*
Below cut off	11.0 (10.4-11.6)	54.6 (50.9-58.4)	7.7 (7.0-8.4)σ	70.7 (67.3-74.2)*

*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test p<0.05).
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response p<0.05 or T-Test on Box-Cox transformed response p<0.05 for socio-demographics with two levels).

SEX AT BIRTH, RACE AND ETHNIC ORIGIN, INDIGENOUS IDENTITY, AND IMMIGRATION STATUS

- In youth, inactive electronic use time and adherence to screen time guidelines significantly differed by sex at birth, race and ethnic origin, Indigenous identity, and immigration status (Table 11).

- Youth boys had significantly greater electronic use times and significantly lower adherence to screen time guidelines than youth girls (Figure 10; Table 11).

Figure 20: Total screen time and using electronics while inactive by sex at birth in youth ages 12-17 years; Ontario, 2019.

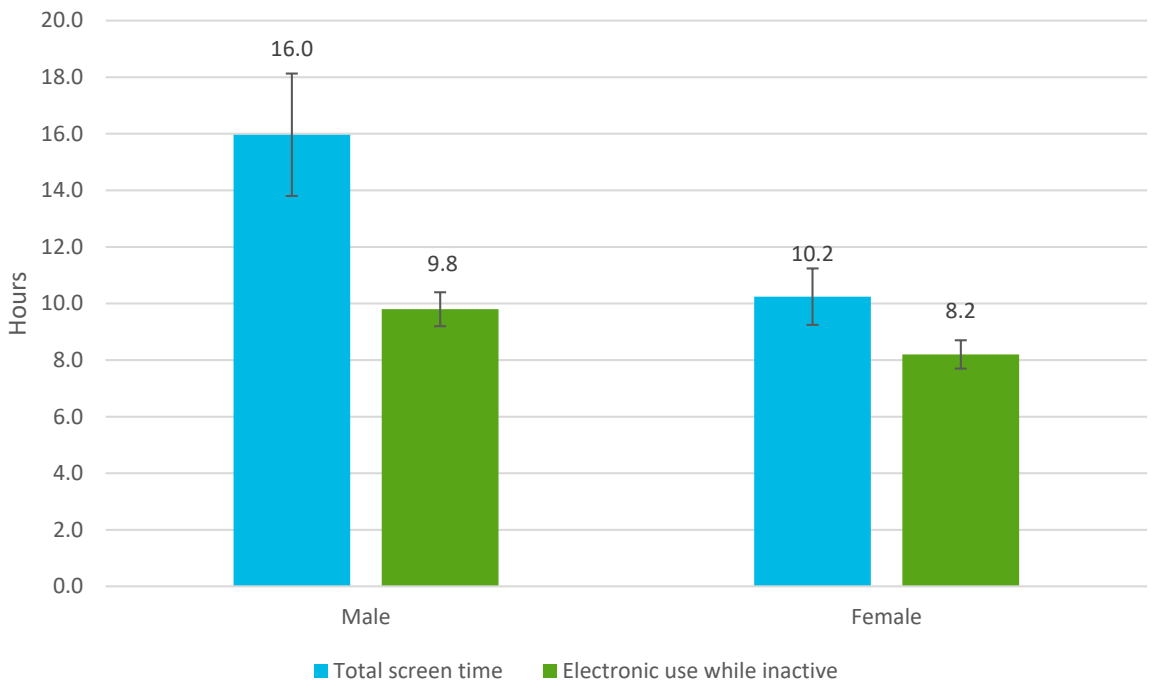
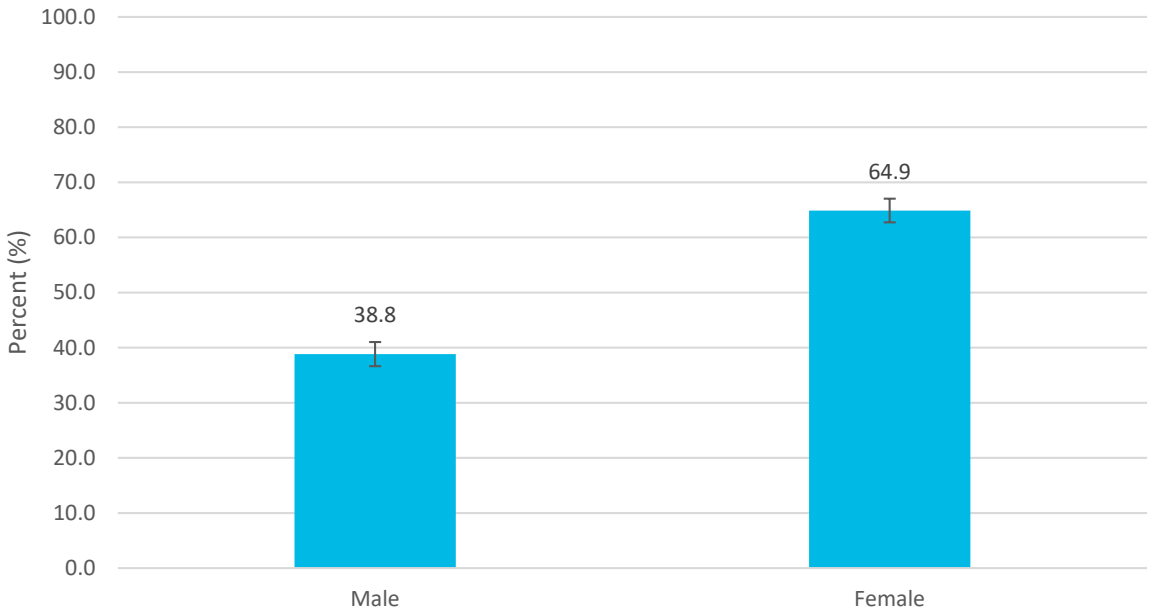
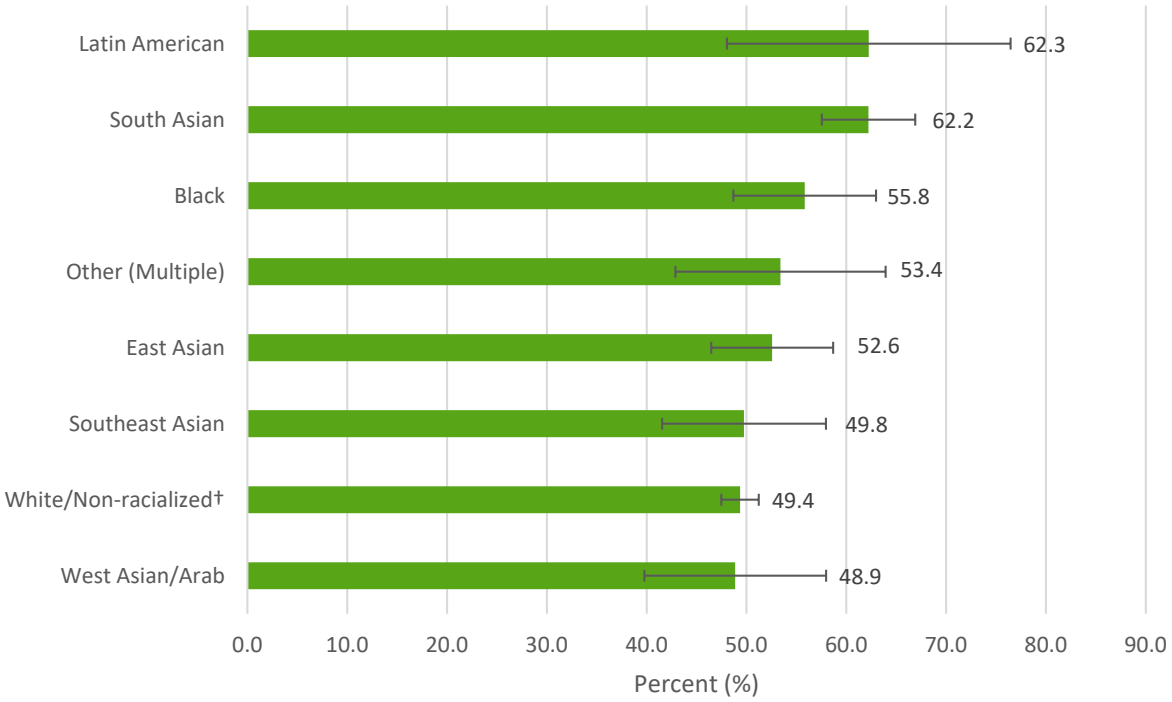


Figure 21: Adherence to screen time guidelines by sex at birth in youth ages 12-17 years; Ontario, 2019.



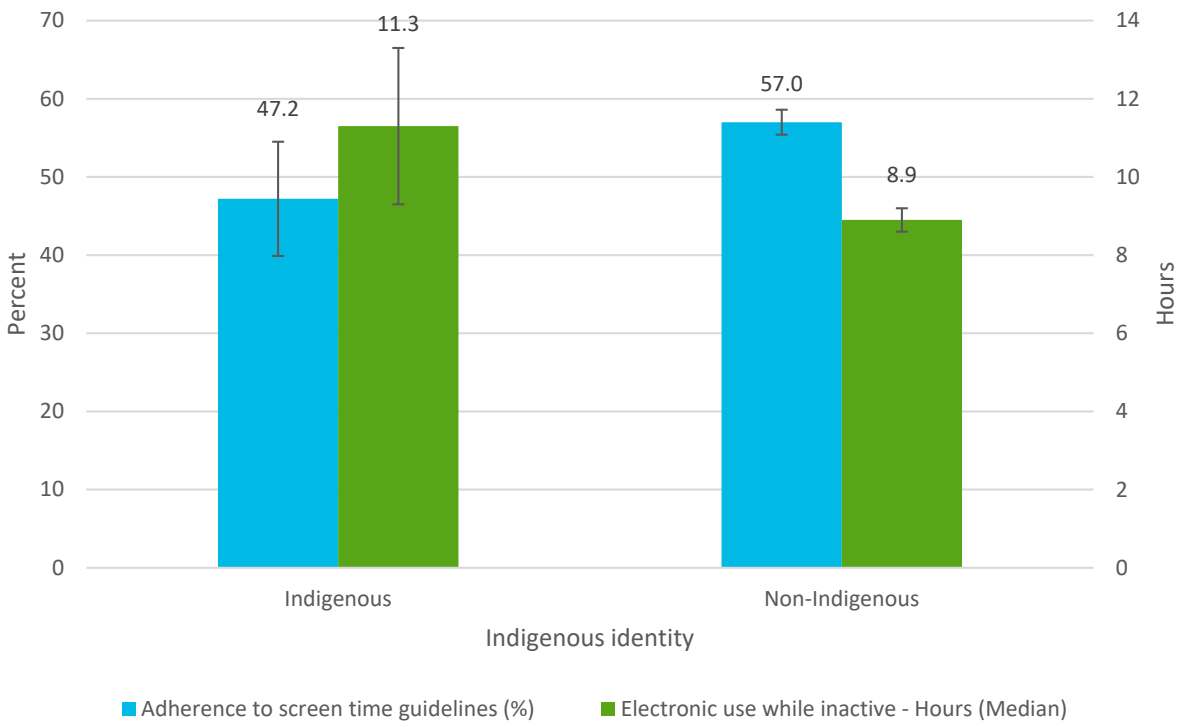
- Adherence to screen time guidelines were significantly different by race and ethnic origin and ranged between 48.9% and 62.3% (Figure 22; Table 11), despite certain groups having large confidence intervals.

Figure 22: Adherence to screen time guidelines by race and ethnic origin in youth ages 12-17; Ontario, 2019.



- Youth who identified as Indigenous had significantly greater electronic use times and significantly lower adherence to screen time guidelines than youth who did not identify as Indigenous (Figure 12; Table 11).

Figure 23: Weekly time spent using electronics while inactive and adherence to screen time guidelines by Indigenous identity in youth ages 12-17 years; Ontario, 2019.



- Youth identified as non-immigrants had significantly greater electronic use times and significantly lower adherence to screen time guidelines than youth identified as immigrants (Figure 24; Table 11).

Figure 24: Total screen time and adherence to screen time guidelines by immigration status in youth ages 12-17 years; Ontario, 2019.

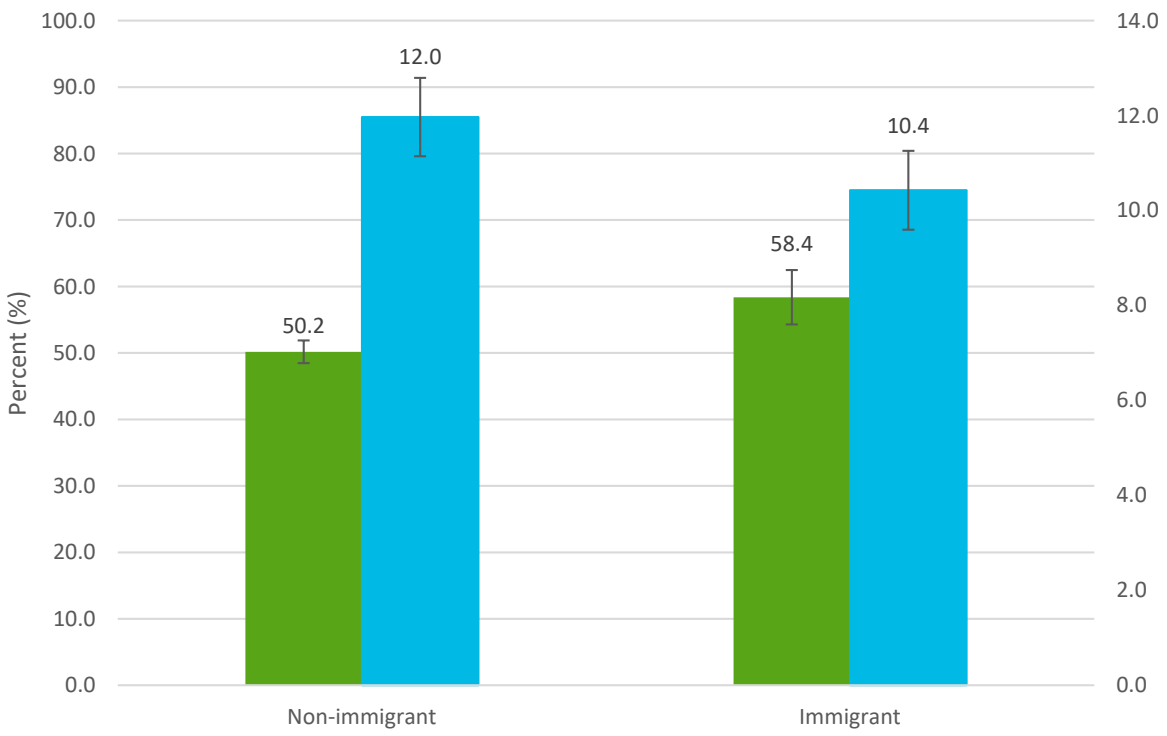


Table 13: Weekly electronic use while inactive, adherence to screen time guidelines, and electronic use before sleep by sex at birth, race and ethnic origin, Indigenous identity, and immigration status in youth ages 12-17 years; Ontario, 2019.

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Sex at birth				
Male	16.0 (13.8-18.1)	38.8 (36.6-41.0)*	9.8 (9.2-10.3)σ	73.5 (71.5-75.4)
Female	10.2 (9.2-11.2)	64.9 (62.7-67.0)*	8.2 (7.8-8.7)σ	75.6 (73.7-77.5)
Race and ethnic origin				
Black	11.0 (9.5-12.5)	55.8 (48.7-63.0)*	8.7 (7.0-10.3)σ	78.2 (72.3-84.0)*
East Asian	11.4 (9.8-13.0)	52.6 (46.5-58.7)*	9.2 (7.8-10.7)σ	73.0 (67.5-78.6)*
Latin American	9.3 (5.8-12.9)	62.3 (48.0-76.5)*	4.9 (2.1-7.7)σ	69.4 (56.3-82.6)*

Socio-demographics	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Other (Multiple)	10.6 (7.0-14.2)	53.4 (42.9-63.9)*	7.1 (5.5-8.7)σ	77.3 (68.8-85.7)*
South Asian	10.3 (8.9-11.7)	62.2 (57.5-66.9)*	6.2 (5.1-7.2)σ	66.6 (61.9-71.4)*
Southeast Asian	12.1 (8.5-15.8)	49.8 (41.6-58.0)*	9.5 (7.1-12.0)σ	82.7 (76.7-88.7)*
West Asian/Arab	12.3 (10.2-14.3)	48.9 (39.8-58.0)*	9.3 (7.2-11.5)σ	71.2 (63.4-79.1)*
White/Non-racialized†	12.3 (11.4-13.2)	49.4 (47.5-51.2)*	9.4 (9.0-9.8)σ	75.7 (74.0-77.3)*
Indigenous identity				
Indigenous	13.8 (10.8-16.9)	46.8 (39.7-53.9)	11.3 (9.3-13.3)σ	75.9 (69.6-82.1)
Non-Indigenous	11.7 (11.4-12.0)	51.7 (50.1-53.2)	8.9 (8.6-9.2)σ	74.5 (73.1-75.9)
Immigration status				
Non-immigrant	12.0 (11.1-12.8)	50.2 (48.5-51.9)*	9.2 (8.8-9.5)σ	75.3 (73.8-76.8)
Immigrant	10.4 (9.6-11.3)	58.4 (54.3-62.5)*	7.8 (7.1-8.6)σ	71.3 (67.4-75.3)
Non-permanent resident	8.3[C] (3.6-13.0)	65.3[C] (43.0-87.6)*	5.5[C] (2.1-8.9)σ	65.1[C] (41.4-88.8)

†Excludes those identifying as Indigenous.
C – This estimate should be interpreted with caution due to high sampling variability.
*indicates a significant difference across socio-demographic variable levels (Rao-Scott Chi-Square Test $p<0.05$).
σ indicates a significantly different mean in at least one subgroup (ANOVA on Box-Cox transformed response $p<0.05$ or T-Test on Box-Cox transformed response $p<0.05$ for socio-demographics with two levels).

PEER GROUP

- In youth ages 12-17 years, inactive electronic use time significantly differed by Statistics Canada Peer Groups. Children living in Peer Groups G&H and D had lower electronic use times than children living in Peer Groups B and C (Table 12).

Figure 25: Adherence to screen time guidelines by Statistics Canada Peer Group in youth ages 12-17; Ontario, 2019.

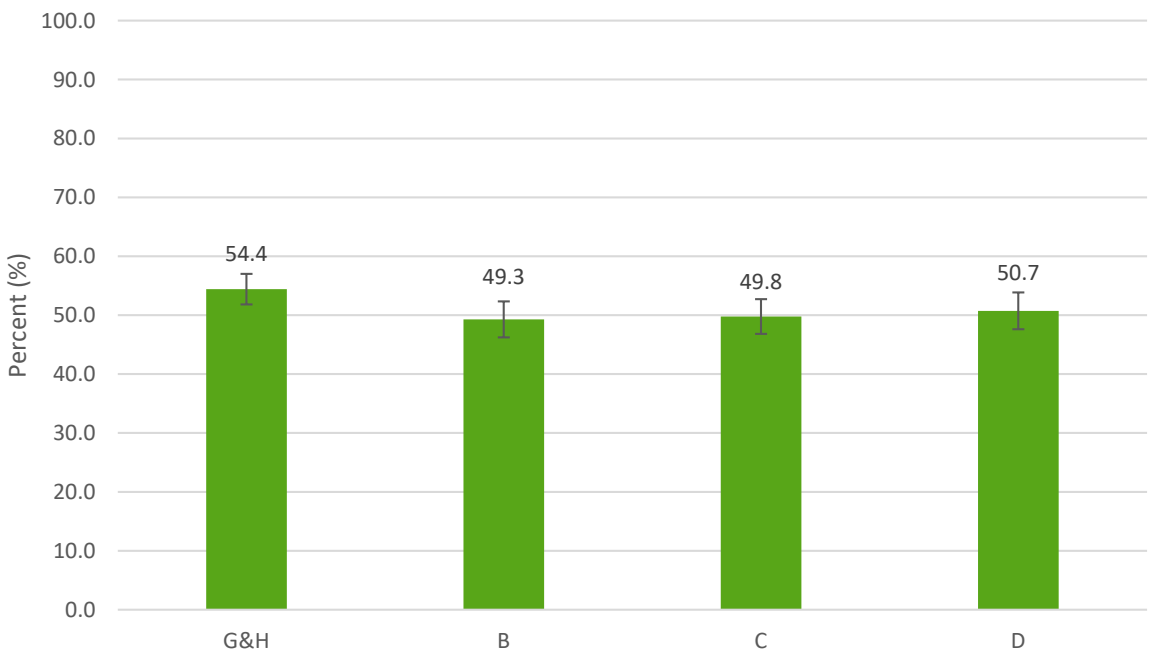


Table 14: Weekly electronic use while inactive, adherence to screen time guidelines, and electronic use before sleep by Statistics Canada peer group in youth ages 12-17 years; Ontario, 2019.

Peer group	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Group G&H	11.2 (10.9-11.5)	54.4 (51.8-57.0)*	8.5 (8.0-9.0)σ	72.5 (70.2-74.9)
Group B	12.3 (11.1-13.4)	49.3 (46.2-52.3)*	9.4 (8.7-10.0)σ	75.4 (72.8-77.9)
Group C	12.1 (11.0-13.2)	49.8 (46.8-52.7)*	9.4 (8.8-10.0)σ	76.9 (74.4-79.5)
Group D	11.9 (10.8-13.0)	50.7 (47.6-53.8)*	8.6 (8.1-9.2)σ	75.3 (72.7-77.9)

σ indicates a significantly different mean in at least one Peer Group (ANOVA on Box-Cox transformed response $p<0.05$); *indicates a significant difference across Peer Group (Rao-Scott Chi-Square Test $p<0.05$).

GEOGRAPHIC REGION

- In youth ages 12-17 years, adherence to screen time guidelines and electronic use before sleep significantly differed by geographic regions. Youth living in Toronto had the highest adherence to guidelines and the lowest use of electronics before sleep. Northern Ontario regions had the highest proportions of youth using electronics before sleep (Figure 26; Table 13).

Figure 26: Adherence to screen time guidelines and electronic use before sleep by geographic region in youth ages 12-17 years; Ontario, 2019.

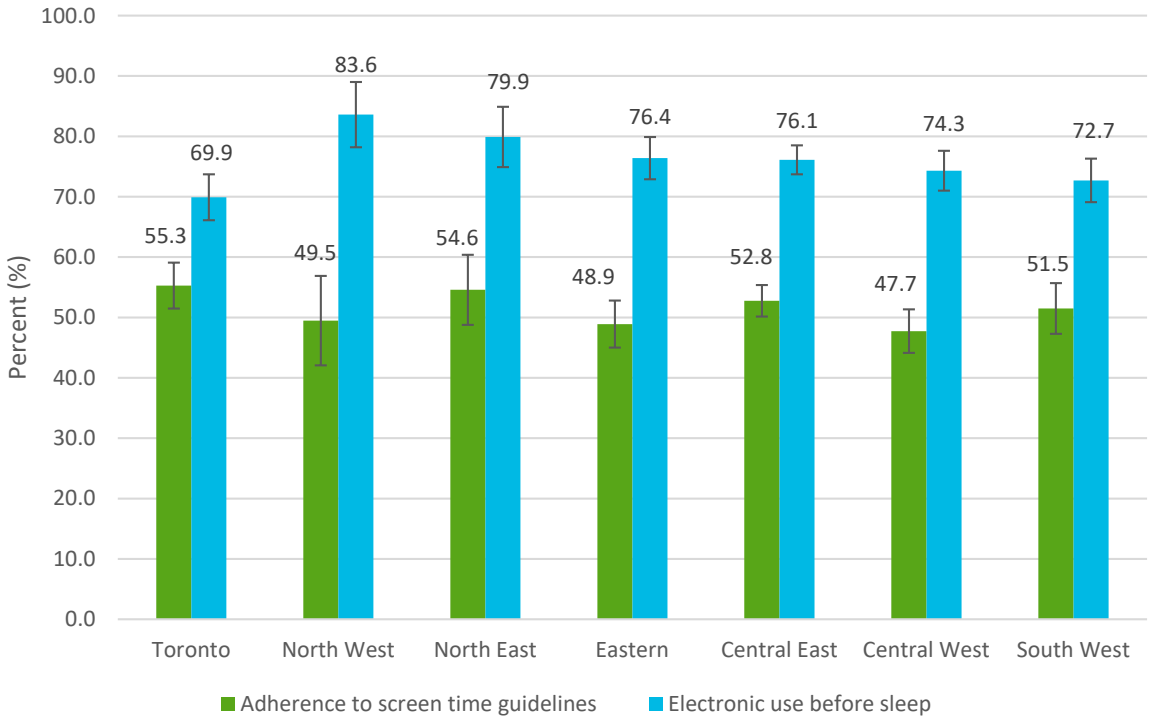


Table 15: Weekly electronic use while inactive, adherence to screen time guidelines, and electronic use before sleep by geographic region in youth ages 12-17 years; Ontario, 2019.

Region	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)	Electronic use while being inactive – Hours – 7d – Median (95% CI)	Electronic use before sleep – Weighted percentage (95% CI)
Toronto	10.8 (10.3-11.3)	55.3 (51.5-59.1)*	8.1 (7.4-8.9)σ	69.9 (66.1-73.6)*
North West	12.2 (10.0-14.3)	49.5 (42.0-56.9)*	9.0 (7.4-10.6)σ	83.6 (78.2-88.9)*
North East	11.1 (9.6-12.6)	54.6 (48.8-60.3)*	9.2 (7.9-10.5)σ	79.9 (74.9-84.9)*
Eastern	12.4 (11.2-13.6)	48.9 (45.0-52.8)*	9.9 (8.8-10.9)σ	76.4 (72.9-79.8)*
Central East	11.5 (11.1-12.0)	52.8 (50.1-55.4)*	9.0 (8.4-9.5)σ	76.1 (73.7-78.5)*
Central West	12.9 (11.7-14.2)	47.7 (44.1-51.3)*	8.8 (8.1-9.5)σ	74.3 (71.1-77.6)*
South West	11.7 (10.5-12.9)	51.5 (47.3-55.7)*	9.0 (8.2-9.8)σ	72.7 (69.2-76.3)*

*indicates a significant difference across regions (Rao-Scott Chi-Square Test $p<0.05$).
σ indicates a significantly different mean in at least one region (ANOVA on Box-Cox transformed response $p<0.05$).

PUBLIC HEALTH UNIT

- In youth ages 12-17 years, total screen time and adherence to screen time guidelines were not significantly different across Public Health Units.

Table 16: Total screen time and adherence to screen time guidelines, by Public Health Unit in youth ages 12-17 years; Ontario, 2019.

Public Health Unit	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)
District of Algoma Health Unit	7.6 (4.6-10.6)	69.6 (57.8-81.3)
Brant County Health Unit	13.6 (9.7-17.5)	46.8 (36.3-57.3)
Durham Regional Health Unit	12.6 (9.8-15.4)	48.8 (41.1-56.4)
Grey Bruce Health Unit	12.0 (8.2-15.7)	50.3 (40.2-60.4)
Haldimand-Norfolk Health Unit	18.4 (15.2-21.5)	38.0[C] (26.6-49.5)
Haliburton, Kawartha, Pine Ridge District Health Unit	11.6 (9.2-14.0)	51.8 (44.0-59.6)
Halton Regional Health Unit	12.2 (10.6-13.9)	49.3 (44.0-54.7)
City of Hamilton Health Unit	12.6 (8.9-16.4)	49.0 (37.6-60.4)
Hastings and Prince Edward Counties Health Unit	13.3 (10.2-16.4)	45.9 (35.4-56.4)
Chatham-Kent Health Unit	12.0 (9.2-14.7)	50.2 (42.1-58.4)
Kingston, Frontenac and Lennox and Addington Health Unit	13.1 (10.8-15.5)	46.8 (38.8-54.8)
Lambton Health Unit	11.4 (6.9-16.0)	53.6 (42.7-64.6)
Leeds. Grenville and Lanark District Health Unit	12.9 (9.6-16.2)	48.1 (38.4-57.8)
Middlesex-London Health Unit	11.3 (8.0-14.6)	52.6 (41.9-63.3)
Niagara Regional Area Health Unit	13.3 (10.3-16.3)	46.4 (36.7-56.1)
North Bay Parry Sound District Health Unit	10.2 (5.9-14.5)	59.4 (47.5-71.3)
Northwestern Health Unit	12.0 (8.6-15.3)	50.1 (41.2-59.1)
Huron Perth Health Unit	10.5 (6.2-14.9)	54.1 (43.4-64.9)

Public Health Unit	Total screen time – Hours – 7d – Median (95% CI)	Adhered to screen time guidelines – Weighted percentage (95% CI)
City of Ottawa Health Unit	12.7 (11.1-14.3)	47.9 (42.2-53.7)
Peel Regional Health Unit	11.3 (10.8-11.8)	54.6 (50.6-58.5)
Peterborough County-City Health Unit	13.2 (11.0-15.5)	45.0 (34.7-55.4)
Porcupine Health Unit	11.8 (7.4-16.2)	51.3 (39.5-63.5)
Renfrew County and District Health Unit	11.0 (8.3-13.7)	62.7 (48.7-76.6)
Eastern Ontario Health Unit	11.7 (7.8-15.6)	52.2 (41.3-63.2)
Simcoe Muskoka Health Unit	11.1 (10.0-12.2)	54.8 (49.0-60.5)
Sudbury and District Health Unit	13.2 (9.4-17.0)	47.0 (35.8-58.1)
Thunder Bay District Health Unit	12.2 (9.2-15.3)	49.2 (38.9-59.4)
Timiskaming Health Unit	12.7 (8.1-17.4)	46.7[C] (25.6-67.8)
Waterloo Health Unit	13.3 (10.9-15.6)	46.2 (38.3-54.1)
Wellington-Dufferin-Guelph Health Unit	12.0 (9.7-14.3)	50.1 (43.2-57.0)
Windsor-Essex County Health Unit	11.4 (9.8-12.9)	54.0 (46.8-61.2)
York Regional Health Unit	11.6 (9.4-13.8)	52.7 (46.7-58.7)
Southwestern Public Health	14.4 (11.9-17.0)	43.2 (34.9-51.5)
City of Toronto Health Unit	10.8 (10.3-11.3)	55.3 (51.5-59.1)

C – This estimate should be interpreted with caution due to high sampling variability; σ indicates a significantly different mean in at least one Public Health Unit (ANOVA on Box-Cox transformed response $p<0.05$).

Discussion

The CHSCY data fill a needed gap exploring sedentary behaviour and screen time data in children 3-11 years of age. Previously, the most recent representative data for this young age group was from the 2018-2019 Canadian Health Measures Survey (CHMS), which only sampled a small number of children, and is only representative at the national level.[12,13]

Overall, over 50% of children and youth 3 to 17 years adhered to screen time guidelines based on reported TV/movie/streaming and video game use (54.1% ages 3-4 years, 65.9% for ages 5-11 years, and 51.5% for youth 12-17 years). The median screen time per week was 5.9 hours, 10 hours and 11.7 hours for 3-4 years, 5-11 years and 12-17 years, respectively. Total screen time, time spent using electronics while inactive, adherence to the screen time guidelines, and electronic use before sleep significantly differed by age group, increasing as children get older.

The proportion of 5-17 year olds who adhered to screen time guidelines was 60.7%, slighter higher than the estimate from the CHMS, where it was reported 53.3% of children in Canada ages 5-17 years adhered to screen time guidelines.[12] This is likely due to differences in how screen time questions were asked between the two surveys. As well, social media use for youth 12-17 years was asked as separate questions and was not included in the total screen time variable. Nonetheless, these parent-reported estimates are likely an underrepresentation of the amount of screen time and therefore sedentary time children and youth are exposed to. Screen time has increased substantially over time due to contemporary technological advancements and an increasingly digital society.[14,15] This data has public health implications due to the established research on the negative mental and physical health effects of excess screen and sedentary time that can last into adulthood.[16,17] There was also a substantial increase in screen time for children during the COVID-19 pandemic as other recreational activities were cancelled. Six months into the pandemic, only 25.6% of children and youth in Canada ages 5-17 years adhered to screen time guidelines.[14]

Sedentary behaviour and screen time indicators differed by sex. Total screen time was higher in boys and boys adhered to guidelines less than girls. Although sex at birth is reported these differences are likely due to gender differences in screen use. Boys spend greater time video gaming and watching/streaming videos, while girls spend greater time on smartphones.[18-21] Due to how electronic device use was asked in CHSCY, video game use is captured for all children 3-17 years which would increase boys' total screen time and likely underestimate time spent on social media for girls. For example, in the CHSCY data, significantly more girls 5-11 years used electronics before sleep than boys.

There were also significant differences in sedentary behaviour and screen time indicators by income variables. Screen time tended to increase with increased income, although time decreased from the fourth to fifth quintiles. Additionally, adherence to screen time guidelines significantly differed by the low income cut-off in youth; a smaller proportion of those living in households above the cut-off adhered to screen time guidelines than those living in households below the cut-off. Conversely, electronic use before sleep increased with decreased SES, possibly due to more lower-income children and youth having electronic devices in their bedroom.[22]

Observations for screen time and adherence to screen time guidelines by socio-demographics were somewhat consistent with previous findings. Generally, a negative relationship between screen time and SES is expected in high income countries[23] whereas in CHSCY, screen time generally increased with increased SES and adherence generally decreased with increased SES. Differences compared to existing studies could be due to differences in income categorizations, measurement, and analytical methods.

Generally, children and youth who identified as White/non-racialized had relatively high screen times, with only those who identified as Southeast Asian having consistently greater electronic use times in

both children and youth. This contrasts with prior studies that observed greater screen times in racialized children and youth than White/non-racialized.[15] Youth who identified as Indigenous had significantly more screen time and had significantly lower adherence to screen time guidelines than youth who did not identify as Indigenous. This is consistent with a previous meta-analysis that observed greater screen time in "North American Indigenous populations" compared to "North American Europeans".[24] The inconsistencies in these findings with other studies is likely due to measurement of both screen time and of race and ethnic origin and due to high variability in our estimates. Comprehensive explanation of these data require more detailed analyses and collaboration with relevant communities to understand the multiple simultaneous contributors that drive the findings.

Geographically, screen time was significantly different between Statistics Canada Peer Groups, geographic region, and public health unit. Children and youth living in the most urban and population dense regions had lower screen time compared to those living in more rural regions. This is somewhat consistent with results from several previous studies. A study that investigated Canadian data from the Health Behaviour in School Aged Children (HBSC) survey found that youth living in rural areas were more likely to watch television and less likely to use a computer compared to youth living in large metropolitan areas.[25]

Physical Activity and Sleep

This report can be examined with the report on physical activity and sleep for a snapshot of adherence to Canadian 24-HMG among children and youth. In children ages 3-4 years, 54.1% adhered to screen time guidelines, 87.5% adhered to sleep guidelines, and 47.3% adhered to both guidelines. In children ages 5-11 years, 34.7% adhered to PA guidelines, 65.9% adhered to screen time guidelines, 85.4% adhered to sleep guidelines, and 16.6% adhered to all three. In youth, 26.4% adhered to PA guidelines, 51.57% adhered to screen time guidelines, 62.0% adhered to sleep guidelines, and 7.8% adhered to all three. These estimates can be compared to CHMS estimates where 9.5% of children and youth ages 5-17 years in Canada met all three guidelines during the 2014-2015 cycle.[26]

Limitations

Several limitations should be considered when interpreting these results. Retrospective self- or PMK-reported data collection in CHSCY may be subject to recall errors and biases. The CHSCY screen time questionnaire is not validated, and we created a composite screen time variable using the "watched TV" and "played video games" variable. We also included the "inactive screen time" variable asked in CHSCY, however found this was an underestimate of total possible screen time. Other questionnaires ask about screen time individually for different types of electronics/use cases on each day over the past week. Importantly, the CHSCY questionnaire is unable to differentiate between weekday and weekend electronic usage, which is known to have marked differences in children and youth.[27] Additionally, the cross-sectional design of the CHSCY and the bivariate analyses performed precludes the identification of any causal relationships. The 2019 CHSCY data were collected over a five-month period and seasonal variations in sedentary behaviours might impact screen time measurements.[28] Another limitation arose from the positively skewed time using electronics while inactive indicator which informed the data transformation and presentation of data as medians. Finally, due to how movement behaviours are collected in CHSCY, exact adherence to the 24-hour movement guidelines is not possible with this dataset.

Technical notes

Data Source

This report examined the Ontario portion of the 2019 Canadian Health Survey on Children and Youth (CHSCY) which used the Canadian Child Tax Benefit (CCB) as the sampling frame to select children and youth between the ages of 1 to 17 years old as of January 31, 2019.

- Children living in private dwellings across 10 provinces and 3 territories were eligible.
- Children living on First Nation reserves or other Indigenous settlements were excluded from the survey. Further, children living in foster care and children and youth who were institutionalized were excluded.
- Only children ages 3-17 years were examined in this report due to a lack of sedentary behaviour/screen time indicator availability in children ages 1-2 years.

Indicators

SEDENTARY BEHAVIOUR AND ELECTRONIC USE VARIABLES

Screen time – hours – 7d (EDV_005)

- In the past 7 days, how much time did [this child/you] spend doing the following? - Watching movies, videos, YouTube, Netflix or television programs.
- PMK-reported for children ages 3-11 years, self-reported by youth ages 12-17 years.
- Six categories: 0 hours, <3 hours, 3 hours to <7 hours, 7 hours to <14 hours, 14 hours to <21 hours, ≥21 hours.
- Categorical, took mid-points to convert into a “continuous” time variable.
- Due to a lack of non-parametric survey analysis methods in SAS EG 8.2, this indicator was Box-Cox transformed with the SAS macro boxcox_survey.macro.v1.1.sas to facilitate parametric analyses. This macro incorporates sampling weights to choose an offset that minimizes mean square error relative to the best linear line on a QQ plot resulting in transformation of data into an approximately normal distribution.[29] ANOVAs or T-tests by socio-demographic and geographic variables were then conducted on the transformed data.

Gaming using electronic devices – hours – 7d (EDV_010)

- In the past 7 days, how much time did [this child/you] spend doing the following? - Playing games using any console or electronic device.
- PMK-reported for children ages 3-11 years, self-reported by youth ages 12-17 years.
- Six categories: 0 hours, <3 hours, 3 hours to <7 hours, 7 hours to <14 hours, 14 hours to <21 hours, ≥21 hours.
- Categorical, took mid-points to convert into a “continuous” time variable.

- Due to a lack of non-parametric survey analysis methods in SAS EG 8.2, this indicator was Box-Cox transformed with the SAS macro boxcox_survey.macro.v1.1.sas to facilitate parametric analyses. This macro incorporates sampling weights to choose an offset that minimizes mean square error relative to the best linear line on a QQ plot resulting in transformation of data into an approximately normal distribution.[29] ANOVAs or T-tests by socio-demographic and geographic variables were then conducted on the transformed data.

Total Screen Time (PHO-derived) – sum of EDV_005 and EDV_010

- Continuous variable of number of hours per week.

Electronic use while inactive – hours – 7d (EDV_050):

- In the past 7 days, how much time in total did [this child/you] spend using any electronic device such as a mobile device, computer tablet, video game console, or television while [he was/you were] sitting or lying down?
- PMK-reported for children ages 3-11 years, self-reported by youth ages 12-17 years.
- Excludes time at school, doing homework, or reading.
- Six categories: 0 hours, <3 hours, 3 hours to <7 hours, 7 hours to <14 hours, 14 hours to <21 hours, ≥21 hours.
- Categorical, took mid-points to convert into a "continuous" time variable.
- Due to a lack of non-parametric survey analysis methods in SAS EG 8.2, this indicator was Box-Cox transformed with the SAS macro boxcox_survey.macro.v1.1.sas to facilitate parametric analyses. This macro incorporates sampling weights to choose an offset that minimizes mean square error relative to the best linear line on a QQ plot resulting in transformation of data into an approximately normal distribution.[30] ANOVAs or T-tests by socio-demographic and geographic variables were then conducted on the transformed data.

Met screen time guidelines (PHO-derived from the categorical version of the composite variables EDV_005 and EDV_010):

- <1 hour/day (<7 hours/week) in ages 3-4.
- <2 hours/day (<14 hours/week) in ages 5-17.
- Dichotomous – met the guidelines, did not meet the guidelines.

Used electronics before sleep – 7d (EDV_055):

- In the past 7 days, did [he/you] use an electronic device in [his/your] bedroom before falling asleep?
- PMK-reported for children ages 3-11 years, self-reported by youth ages 12-17 years.
- Dichotomous – yes, no.

SOCIO-DEMOGRAPHIC VARIABLES

The socio-demographic variables used in this analysis include age, sex at birth, household income, education of person most knowledgeable (PMK) of the child and their spouse, race and ethnic origin (including Indigenous identity), and immigration status. For more information on these socio-demographic variables and how they were recoded please see the full Technical Report.

- Age was categorized as 3-4, 5-11, and 12-17 years.
- Sex at birth was categorized as male or female.
- Household income was categorized into 7 levels (<$24,999, $25,000-$49,999, $50,000-$74,999, $75,000-$99,999, $100,000-$149,999, $150,000-$199,999, and $200,000+).
- Income quintiles: income divided into five equal groups, each group is known as a quintile. Quintile one (Q1) represents the lowest 20% of the data distribution and quintile five (Q5) is the highest 20%.
- Low-income cut-off (LICO) measure is a dichotomous variable describing low or high income. It was calculated using Canadian 2019 before-tax income adjusted for community and household size.[31]
- Highest Household Educational Attainment of the PMK or PMK Spouse was categorized into three groups (high-school or less, college/vocational/university certificate or diploma, and university or more).
- Race and ethnic origin were categorized as South Asian, Black, East Asian, Southeast Asian/Filipino, West Asian/Arab, White/Not a Racialized Group, Latin American, and other (or multiple).
- Indigenous identity (First Nations, Inuit or Métis) was defined as 'Yes' or 'No'.
- Immigration status was categorized as non-immigrant, immigrant, and non-permanent residents.

GEOGRAPHIC VARIABLES

The proportion of children was categorized by Statistics Canada Peer Groups and by major geographic regions.

Statistics Canada Peer Groups[32] are based on the following list:

- Group B – Mainly urban centres with moderate population density.
    - Durham Region Health Department, Halton Region Public Health, City of Hamilton Public Health Services, Middlesex-London Health Unit, Ottawa Public Health, Region of Waterloo Public Health and Emergency Services, Windsor-Essex County Health Unit.
- Group C – Sparsely populated urban-rural mix.
    - Algoma Public Health, Brant County Health Unit, Chatham-Kent Public Health, Eastern Ontario Health Unit, Haliburton, Kawartha, Pine Ridge District Health Unit, Hastings Prince Edward Public Health, Kingston, Frontenac and Lennox & Addington Public Health, Lambton Public Health, Niagara Region Public Health, North Bay Parry Sound

District Health Unit, Porcupine Health Unit, Peterborough Public Health, Public Health Sudbury & Districts, Thunder Bay District Health Unit, Timiskaming Health Unit.

- Group D – Mainly rural.
    - Grey Bruce Health Unit, Haldimand-Norfolk Health Unit, Huron Perth Public Health, Leeds, Grenville & Lanark District Health Unit, Northwestern Health Unit, Renfrew County and District Health Unit, Simcoe Muskoka District Health Unit, Southwestern Public Health, Wellington-Dufferin-Guelph Public Health.
- Group G&H – Largest population centres with high population density.
    - City of Toronto, Peel Public Health, York Region Public Health.
- The major **geographic regions** are the following:
    - North West – Northwestern Health Unit, Thunder Bay District Health Unit.
    - North East – Porcupine Health Unit, Timiskaming Health Unit, Public Health Sudbury & Districts, Algoma Public Health, North Bay and Parry Sound District Health Unit.
    - South West – Windsor-Essex County Health Unit, Chatham-Kent Public Health, Southwestern Public Health, Lambton Public Health, Middlesex-London Health Unit, Huron Perth Public Health, Grey Bruce Health Unit.
    - Central West – Wellington-Dufferin-Guelph Public Health, Halton Region Public Health, City of Hamilton Public Health Services, Niagara Region Public Health, Region of Waterloo Public Health and Emergency Services, Haldimand-Norfolk Health Units, Brant County Health Unit.
    - Toronto Public Health.
    - Central East – Peel Public Health, York Region Public Health, Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peterborough Public Health, Simcoe-Muskoka District Health Unit.
    - East – Renfrew County and District Health Unit, Hastings Prince Edward Public Health, Kingston, Frontenac and Lennox & Addington Public Health, Leeds, Grenville & Lanark District Health Unit, Ottawa Public Health, Eastern Ontario Health Unit.

Data Analysis

SAS 8.2 Enterprise Guide was used to conduct all statistical analysis. Bivariate analyses were conducted between the covariates and injury type.

- PROC SURVEY commands were used with bootstrap replications (n=1,000) and bootstrap weights provided by Statistics Canada. Using these, point estimates and 95% confidence intervals were calculated.
- Statistics Canada approved guidelines were used to report outcomes, where estimates with coefficients of variation (CV) with less than 0.15% were reported without warnings.

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