

Halton Youth Survey: Youth Body Mass Index (BMI)

The [Halton Youth Survey \(HYS\)](#) examines issues related to healthy youth development including connections to family, school, community and peers, as well as mental and physical health.¹ A growing number of children and youth in Ontario are overweight or obese, which has made poor nutrition and lack of physical activity important health issues.² Being overweight or obese can put youth at risk of other health conditions including diabetes, cancer and heart disease.² There are many factors at the individual, family and societal levels that influence obesity.²

Purpose of Health Indicator Report: To provide information about BMI among grade 7 and grade 10 students in Halton Region

Data Source: Halton Youth Survey³

Data Collection Period: 2012

For more information on definitions, statistical significance, data interpretation and limitations in this report, see the [data notes](#) section on the last page.

Overall Findings:

- In 2012, 7%(±1) of grade 7 students were underweight, 73%(±1) were normal weight, 15%(±1) were overweight and 6%(±1) were obese (see **Figure 1**).
- In 2012, 3%(±1) of grade 10 students were underweight, 77%(±1) were normal weight, 15%(±1) were overweight and 5%(±1) were obese (see **Figure 1**).
- Grade 7 students were more likely to be underweight, and less likely to be normal weight compared to grade 10 students, and these differences were statistically significant. There were no statistically significant differences by grade in the percent of students who were overweight, or obese. It is important to note that these are self-reported results and individuals tend to over-report their height and under-report their weight, which results in an overestimate of the underweight category, and an underestimate in the overweight and obese categories⁴.

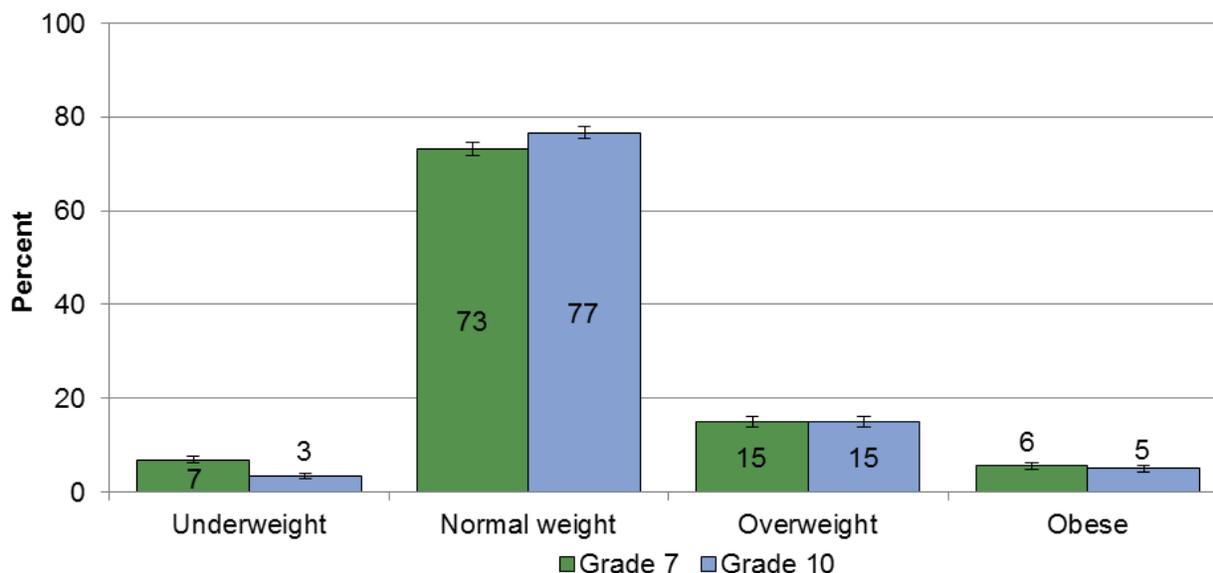


Figure 1: Body mass index categories, grade 7 and 10 students, Halton Region, 2012

Grade 7 Demographic Characteristics:

Overall

- In 2012, 20%(±1) of Halton grade 7 students were overweight or obese (see **Figure 2**).

Sex

- In 2012, Halton grade 7 males [26%(±2)] were more likely than females [14%(±2)] to be overweight or obese, and this difference was statistically significant (see **Figure 2**).

Municipality

- In 2012, there were no statistically significant differences by municipality in the percent of Halton students in grade 7 who were overweight or obese (see **Figure 2**).

Neighbourhood Income

- In 2012, the percent of Halton students in grade 7 who were overweight or obese decreased as neighbourhood income increased. These differences were statistically significant when comparing the middle [23%(±3)] and high [19%(±1)] income groups (see **Figure 2**).

Mother's Education[‡]

- In 2012, the percent of Halton students in grade 7 who were overweight or obese decreased as mother's level of education[‡] increased. These differences were statistically significant when comparing students whose mother's did not graduate high school [37%(±12)] to students whose mother's graduated college or university [19%(±1)] (see **Figure 2**).

Developmental Assets[®]

- See [Data Notes](#) for a definition of Developmental Assets[®]
- In 2012, the percent of Halton students in grade 7 who were overweight or obese decreased as the number of Developmental Assets[®] increased. These differences were statistically significant when comparing students with 16-20 [16%(±2)] Developmental Assets[®] to students with 11-15 [21%(±2)], 6-10 [22%(±3)] and 0-5 [27%(±6)] Developmental Assets[®] (see **Figure 2**).

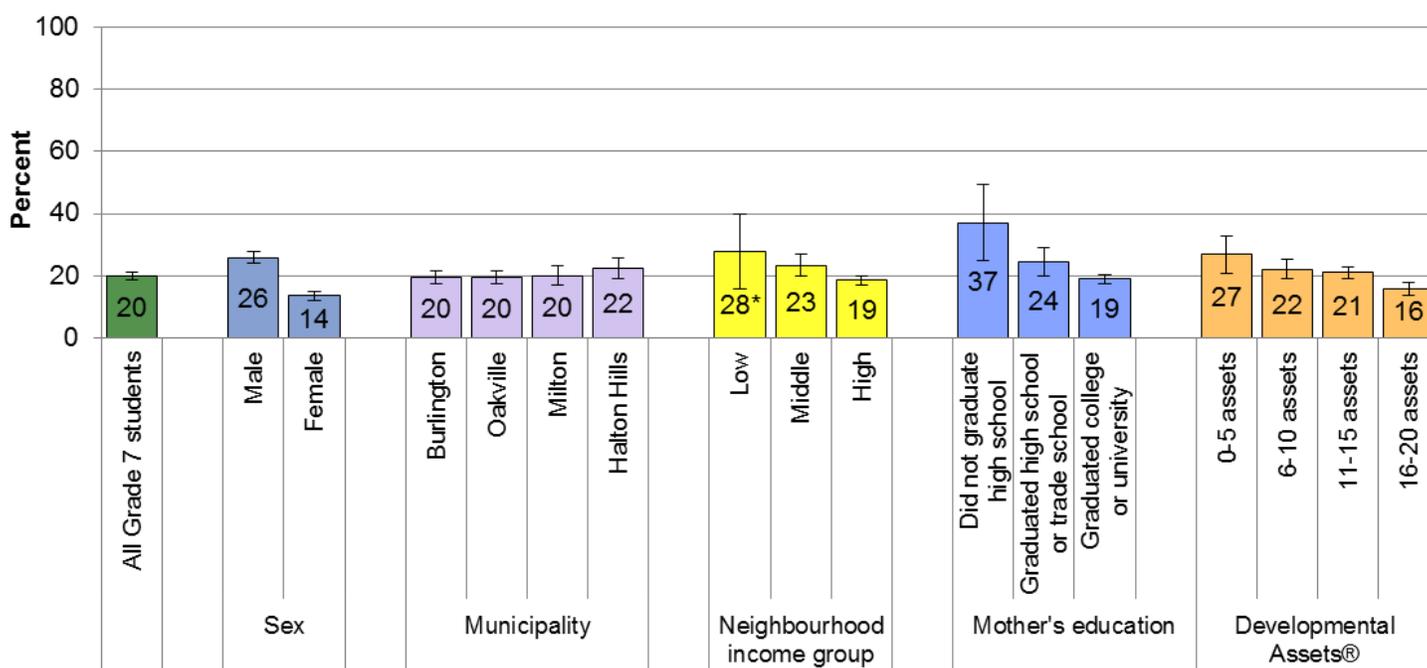


Figure 2: Percent of grades 7 students who are overweight or obese, by sex, municipality, neighbourhood income, mother's education[‡] and number of Developmental Assets[®], Halton Region, 2012

[‡]When a student indicated they did not have a mother, their father's education was used instead, when available.

Grade 10 Demographic Characteristics:

Overall

- In 2012, 20%(±1) of Halton grade 10 students were overweight or obese (see **Figure 3**).

Sex

- In 2012, Halton grade 10 male students [28%(±2)] were more likely than females [11%(±1)] to be overweight or obese, and this difference was statistically significant (see **Figure 3**).

Municipality

- In 2012, there were no statistically significant differences by municipality in the percent of Halton students in grade 10 who were overweight or obese (see **Figure 3**).

Neighbourhood Income

- In 2012, the percent of Halton students in grades 10 who were overweight or obese decreased as neighbourhood income increased. These differences were statistically significant when comparing the low [34%(±12)] and high [19%(±1)] income groups (see **Figure 3**).

Mother's Education[‡]

- In 2012, the percent of Halton students in grades 7 who were overweight or obese decreased as mother's level of education[‡] increased, however these differences were not statistically significant (see **Figure 3**).

Developmental Assets[®]

- See [Data Notes](#) for a definition of Developmental Assets[®]
- In 2012, the percent of Halton students in grade 10 who were overweight or obese decreased as the number of Developmental Assets[®] increased. These differences were statistically significant when comparing students with 0-5 Developmental Assets[®] [25%(±2)] to students with 11-15 [19%(±1)] and 16-20 [18%(±1)] Developmental Assets[®] (see **Figure 3**).

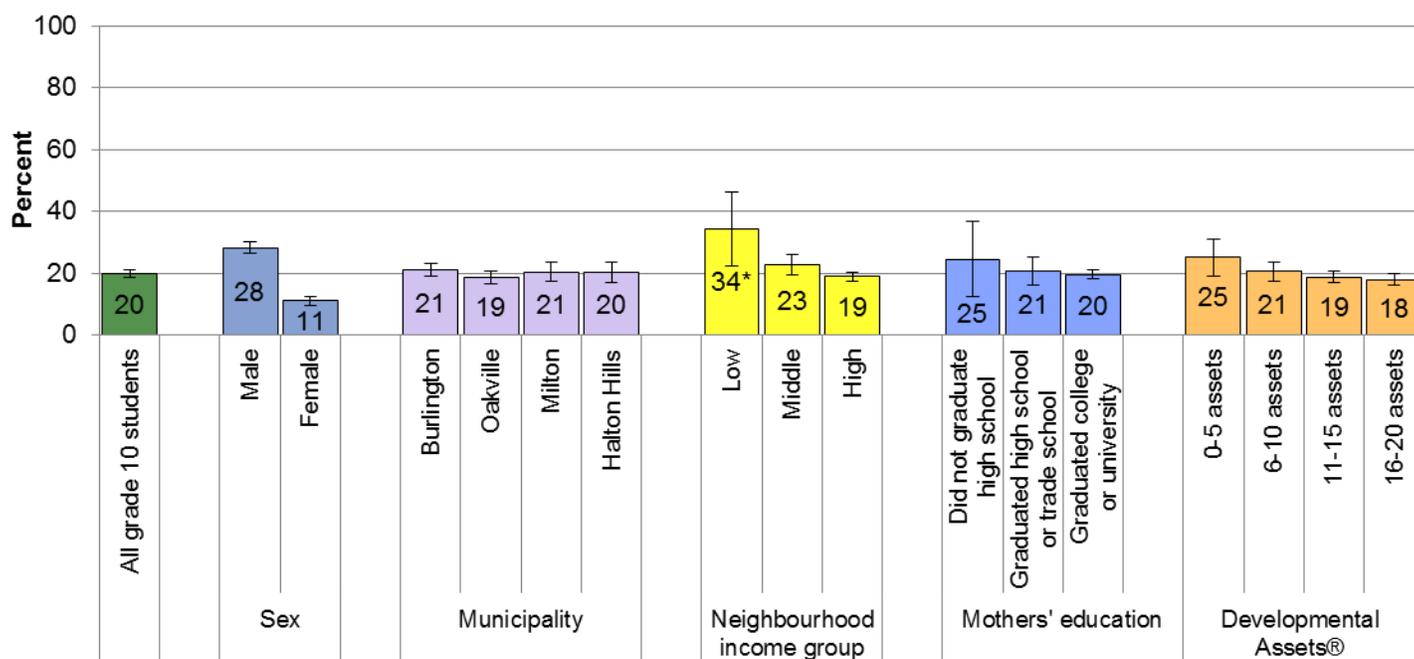


Figure 3: Percent of grade 10 students who are overweight or obese, by sex, municipality, neighbourhood income, mother's education and number of Developmental Assets[®], Halton Region, 2012

[‡]When a student indicated they did not have a mother, their father's education was used instead, when available.

Data Notes:

Definitions:

Developmental Assets[®] refers to the [40 Developmental Assets](#)[®] for healthy youth development developed by the Search Institute.⁵ These assets are “researched-based, positive qualities that influence young people’s development, helping them become caring, responsible, and productive adults”.⁵ The Halton Youth Survey³ only collected data on 20 of the 40 Developmental Assets[®].

Body mass index (BMI) was calculated using self-reported height and weight ($BMI = \text{weight}(\text{kg}) / \text{height}^2(\text{m})$).

Underweight, normal weight, overweight and obese categories are based off of the [2007 World Health Organization age and sex specific BMI classification cut-offs for children and adolescents aged 5-19](#).⁶

Statistical Significance:

A **95% confidence interval (CI)** refers to the range of values that has a 95% chance of including the true estimate. 95% CI’s are reported in brackets or presented as “I” shaped bars in the graphs. A large CI means that there was a large amount of variability in responses or the sample size for the category was small. When CIs do not overlap between 2 or more groups (e.g., when comparing males and females) it means that the differences between the groups are **statistically significant** and unlikely to be due to chance alone. Since overlapping confidence intervals are used to determine statistical significance, p-values are not calculated. This is a conservative approach ($\alpha < 0.01$) which is more appropriate when multiple comparisons are being made, such as in this report.

Data Interpretation:

The National Household Survey (HNS) indicator “in the bottom half of the Canadian Distribution” was used as a basis for the **neighbourhood income groups**.⁷ The term neighbourhood refers to a single census dissemination area (DA). This indicator provides the percent of households per DA who are in the bottom half of the Canadian distribution based on adjusted household income. Using this value, all DAs in Canada were ranked into 3 equal groups. When looking at Halton alone, this resulted in 19 DAs in the lowest income group, 186 in the middle income group and 528 in the high income group.⁸ Each student was assigned to a DA and corresponding income group using the postal code provided and the postal code conversion file PCCF.⁹ This income indicator is based on geographical level data, therefore inferences made about the relationship between income and overweight/obesity at the individual level should be made with caution.

Coefficient of variation (CV) refers to the precision of the estimate. When the CV is between 16.6 and 33.3, the estimate should be interpreted with caution because of high variability and has been marked with an asterisk (*). Estimates with a CV of greater than 33.3 are not reportable and have been marked with double asterisks (**) in the graphs and tables.

Limitations:

Missing data: 1) Body mass index could not be calculated for 20.5% of students because of missing or biologically implausible data. 2) For 12.6% of students their neighbourhood income could not be determined either due to missing/invalid postal code, or limitations with the income data. 3) 14% of students did not know their mother’s education, 1% indicated they did not have a mother, and 5% left their mothers education blank, in these cases if their father’s education was available, it was used in the calculation of the indicator “mothers education”.

BMI calculations are based off of self-reported height and weight, which may not accurately reflect true height and weight. Self-reported weight tends to be underestimated for both adolescents and adults, particularly among females.¹⁰ Therefore, the estimated percent of overweight and obese students in this report is likely less than the true percent of overweight and obese students in the population.

Rounded estimates were used for the presentation of data, thus estimates may not total to 100 percent. Rounded CI’s were used for the presentation of data; however, non-rounded CI’s were used to determine significant differences.

References:

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