Examining child sedentary behaviour in the context of children's current multimedia environment

Dear Editor:

Re: Tu AW, Mâsse LC, Lear SA, Gotay CC, Richardson CG. Exploring the mediating roles of physical activity and television time on the relationship between the neighbourhood environment and childhood obesity. *Can J Public Health* 2016;107(2):e168–e175. doi: 10.17269/CJPH.107.5268

As noted by the World Health Organization (WHO), childhood obesity has dramatically increased over the last two decades and has become one of the most significant public health issues all over the world.¹ The importance of child obesity research is paramount as evidence suggests that overweight and obese children are likely to continue this weight pattern into adulthood, predisposing them to a host of chronic diseases.²

Evidence for adverse health effects of excessive sedentary behaviour in children is predominantly based on cross-sectional studies, measuring TV viewing as the single indicator of sedentary behaviour.³ This methodology is utilized in the 2016 study by Tu et al.⁴ Cross-sectional studies by design prevent the inference of causality of the association between sedentary behaviour and childhood obesity.³ As levels of sedentary behaviour and health indicators for obesity remain relatively stable over time, the use of a cross-sectional study design, which examines a population at a single point in time, may be less advantageous.³ High-quality prospective studies that provide insight into a potential causal relationship would be a preferable study design and provide increased validity.⁵

Parental report of child TV viewing time from 1994–1995 survey data is used as the exclusive measure of sedentary behaviour.⁴ However, sedentary behaviour can be more broadly defined as a distinct class of behaviours characterized by little physical movement and low energy expenditure.³ This definition is inclusive of a broader range of sedentary activities, such as computer use, playing video games, listening to music, watching movies and TV shows, and sitting.⁵ This definition may provide a more accurate representation of children's current environment where multiple modes of electronic media are available and accessible.³ Therefore, to accurately assess the strength of the

association between sedentary behaviour and childhood obesity, one would postulate the need to examine multiple measures of sedentary behaviour in addition to TV time.

This hypothesis is supported by a 2016 systematic review by van Ekris et al., which examined stratification of sedentary behaviour.³ Measures of TV viewing, computer use/games, screen time and objective sedentary time were examined individually and then in combination to produce strong evidence for a relationship with overweight/obesity.³ Stratifying by multiple types of sedentary behaviour may add strength to the study design and improve validity and generalizability of study results.⁶ Therefore, future studies examining the relationship between sedentary behaviour and childhood obesity should consider a prospective study design to allow for inference of causality and examine a broad range of sedentary behaviours to produce more valid and generalizable study results.^{3,6}

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