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Title	Dietary sugar intake among preschool-aged children: a cross-sectional study
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Reviewer 1	Dr. Hasanain Ghazi
Institution	Management and Science University
General comments (author response in bold)	1. Why age was taken from 18 months? what is the definition of preschool? **Thank you for your support for our study. The age group of interest for the Guelph Family Health study is from 18 months to 5 years of age, consistent with preschool age range. There is limited research information available for this age group on sugar intake in children along with early life interventions can begin as early as 18 months.** 2. What you mean by this (participants were enrolled for the pilots)? **We have an ongoing pilot study that was started before the full-scale GFHS (Please see Editorial Comment #1 for details). The research information presented in the manuscript is the data from the pilot families from baseline time point (that began in 2014).** 3. Why the sample size too small? how much is the sample size for the big study **Please see Editorial Comment #2. Currently, the full study has enrolled n= 246 families, n=322 preschool-aged children and n= 426 parents at baseline.** 4. Why categorizing household income? make it numerical variable **In Table 1, household income is presented in the table for descriptive information to give the reader an estimate of the population. The household income was also collected categorically. No data analyses were completed further for this information and hence, the household income has been presented in categories.** 5. Change the color of figure 1 and 2 **The bar chart was changed to blue color as suggested.** 6. Presentation of table 2 confusing **Footnotes have been previously included to depict the data.** 7. Table 3 put SD **A regression was completed for Table 3 for each of the category and an intercept, standard error and 95% CIs were obtained.**
Reviewer 2	Dr. Ilona Hale
Institution	Kimberley Medical Clinic, Kimberley, BC
General comments (author response in bold)	CMAJOpen-2020-0178 - Dietary Sugar Intake among Preschool-aged Children: Cross-sectional Associations of Intake of Total, Added and Free Sugar with Anthropometric Measures This is an interesting cross-sectional data analysis of sugar intake and anthropometric measures in pre-school children. The findings shed some light on current trends in feeding of young children, at least in this higher SES population,

	which may have relevance to future policy. The result that was most interesting and significant to me, but one that wasn't highlighted, was about the "cereal and grain" products (as well as "bakery products" which was mentioned) now being an important source of sugar in these children's diets (as big as beverages if I am interpreting the data correctly). There has been a policy push towards taxing sugar sweetened beverages and an increased awareness of fruit juice as a source of dietary sugar but this new information could help parents and policy-makers realize that baking (even the less obvious things like bread) and cereals and grains might be another important target for education and policy. It would be interesting to do a long term follow-up on these kids since weight during pre-school years may differ from weight during adolescence and adulthood (which is more significant for long term health). I have no serious concerns about this study as it appears to be well-designed and conducted. Some minor general comments: Introduction – To help the general reader who is less familiar with this this topic it would be very helpful to include the definition of free, added and total sugar that you are using right at the start. **Thank you for your support for our study. We have added the definitions of free and added sugar into the background as per Editorial comment #11.** The introduction could use a quick edit to improve flow, readability and grammar and a few unclear word choices (line 4 – what is meant by "parental"? Line 16 - "non-communicable", Line 21 – these results are not really contrary, just apples and oranges.) **Thank you for your feedback. We have edited the introduction to improve flow and removed words such as "parental", "non-communicable" and "Contrary to the findings…" as you suggested.** Edited version in manuscript: "Introduction Dietary patterns begin in early childhood and can continue into adulthood. Thus, early years are crucial for nutrition interventions and habit formation.1 Infants have a natural affinity towards sweet foods overall and pre- and post-natal exposures of added sugar are important.2,3 Genetic environmental and cultural influences can increase preferences for sugary foods in children.2 However, there is a lack of high quality research data on the dietary intake of sugars among young children, especially among infants and toddlers.4 Given that cardiometabolic risk markers may begin to emerge as young as 3 years of age,5 it is important to understand the sugar intake patterns and explore associations between intake of sugar and cardiometabolic risk markers (including anthropometric measures) in early life. This information will help inform policy development and behavior change intervention programs focused on early prevention. Adverse effects of excessive sugar intake are a cause for global public health concern in all age groups.6 Overconsumption of sugar has been associated with increased risk of excessive weight gain, dental decay, poor diet quality and nutritional inadequacy in children and adolescents under the age of 19 y.4,7,8 Excessive sugar intake has also been implicated in the development of high blood pressure and lipid abnormalities in children,4 which can lead to earlier presentation

	of chronic diseases in children than seen in previous generations.5 In the majority of studies, sugar sweetened beverages (SSB) are the primary source of dietary sugar intake among children and adolescents.9 One study found that SSB consumption in the first year of life was associated with a 13% increase in risk of being overweight at 8 years of age.10 Recently, a study found that higher intakes of SSB and 100% fruit juices are associated with increased risk of cardiometabolic risk factors in preschool-aged children.11 Moreover, there are studies that have found no significant associations between SSB intake and body weight or body mass index (BMI) Z-scores in preschool-aged and school children.10,12 Given these mixed findings and the primary focus on SSB, we embarked on our research study using detailed dietary assessments to broadly examine sources of sugar intake and investigate associations between dietary sugar intake and anthropometric measures in preschool-aged children. Our study objectives were two-fold. Firstly, to examine the daily intakes of total sugar, free sugar and added sugar, and the key food sources (by category) of free and added sugar among a sample of preschool-aged children. There are multiple sugar definitions in the research literature for added, free and total sugar. The World Health Organization (WHO) defines added sugar as any type of dietary sugar that is added in processing or preparation of foods (e.g., sugars added when manufacturing sugar sweetened beverages and sweet treats such as lollipop, candies and fruit snacks).24 The term "free sugar" is a broader definition which includes added sugar and sugars that are naturally occurring in honey, syrups, fruit juices and fruit juice concentrates. 6,24 Total sugars include free, added and natural sugars found in fruits, vegetables and unsweetened milk. 24 Our research study has adopted these definitions from the WHO and Health Canada for free and total sugar. However, the present studied used a more common definition of added sugar used in the research literature, which includes sugars added during manufacturing, honey and syrups.13,14 Our second objective was to explore cross-sectional associations between intakes of total, free and added sugar with anthropometric measures, including body weight, BMI Z-scores, body weight, waist circumference and percent body fat. We hypothesized that free and added sugar intake in preschool-aged children will be positively associated with anthropometric measures." Methods: The sample size seems quite small to me although I am not an expert on this. I don't know if it is adequately powered to answer the question? **Please see Editorial Comment #2 for this response.** Study Measures – Page 4 Line 19 – again it would be good to have your definition here **Thank you for your feedback. Please refer to Editorial Comment #4 for addition of definitions for clarity as suggested.** Line 23-25 – this is all a little confusing. It is not clear whether the food groups and food categories are the same thing? **We have changed the word from food groups to food categories for clarity and consistency or wording as suggested.** Results – It would be helpful to have a table of the different food groups / categories adjacent to the results along with some examples (how is "bread" not a cereal / grain? What else is in cereals and grains?) This would make the data less confusing (for eg. – Food sources of free and added sugar Page 5, Line 29-35)

	Please see Editorial Comment #13- we have added the examples of food categories for clarity.