

## PEER REVIEW HISTORY

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## ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | Food choices: Concordance in 11-12 year old Australians and their parents   |
| <b>AUTHORS</b>             | Vivarini, Prudence; Kerr, Jessica; Clifford, Susan; Grobler, Anneke; Jansen, Pauline; Mensah, Fiona; Baur, L; Gibbons, Kay; Wake, Melissa |

## VERSION 1 - REVIEW

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| <b>REVIEWER</b>        | Megan Jarman<br>Postdoctoral research fellow Li Ka Shing Centre for Health Research Innovation Department of Agriculture, Food and Nutrition Science University of Alberta, Canada |
| <b>REVIEW RETURNED</b> | 26-Apr-2018  |

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| <b>GENERAL COMMENTS</b> | <p>Review of BMJ-Open 2017-020898 "Food choices: Concordance in 11-12 year old Australians and their parents" This is a large study of objectively measured, unsupervised, snack intake in 11-12year old children and their parents. It is novel in its approach and contributes to the current evidence base. It is well written and I believe acceptable for publication. I have 3 very minor points for consideration.</p> <p><b>Introduction</b><br/>This is well written and nicely summarizes the literature to provide justification for the research question. However I wonder if the authors could include some information on the age of the children in the studies which show small to moderate concordance with the food choices of their parents. As I understand it this is not the case for preschool children and in studies analysing diet at the food group level (e.g. fruits and vegetables), rather than a nutrient level (energy intake).</p> <p><b>Discussion</b><br/>I like that the authors have considered the 'bigger picture' in their analysis and identified the possible wider impact of eating these snacks daily. However the authors may like to just comment on the fact that in this study parents and children are outside of their normal setting i.e. in a study centre not their home or other location at which they may usually consume snacks and therefore this may not be a reflection of usual behaviour.</p> <p><b>Unanswered questions and future research</b><br/>This paragraph doesn't read very well – I'm not sure if it has words missing e.g. do the words 'is warranted' (or alike) need to be added to the end of the first sentence? At the moment it reads like</p> |
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|  | bullet points that are not in bullet point form. I think the points are appropriate it just needs wording better to improve the flow. |
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| <b>REVIEWER</b>        | Heidi Bergmeier<br>Monash Centre for Health Research and Implementation (MCHRI)<br>Australia |
| <b>REVIEW RETURNED</b> | 01-Sep-2018  |

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| <b>GENERAL COMMENTS</b> | <p>Thank you for the opportunity to review this well written manuscript investigating concordance in parent-child dyad snack consumption. The current study is one of very few that uses objective measures of parent and child food consumption and benefits from having a large sample size. It must be acknowledged that this method of obtaining data is quite an undertaking and the authors must be commended on the impressive effort.</p> <p>While the study provides further evidence showing relationships between parent-child dyad eating, it is less clear how it will contribute toward improving childhood obesity interventions. As described in the introduction, it is already known that parents shape children’s dietary habits through a range of methods, including modelling and feeding practices. Also, there are existing childhood obesity interventions that focus on parents/families, not just individual-level dietary consumption. Therefore, the paper would need to present a much stronger case outlining how it advances intervention/prevention science before it can be considered for publication. For example, other research has now progressed to attempting to understand not just what parent-child dyads eat, but why and how, in order to identify ways to best support behaviour modification that will lead to childhood obesity prevention/reduction. The following example papers may be helpful:</p> <p>Lumeng, Julie C., et al. "Observed assertive and intrusive maternal feeding behaviors increase child adiposity–." <i>The American journal of clinical nutrition</i> 95.3 (2012): 640-647.</p> <p>Lumeng, Julie C., and Lori M. Burke. "Maternal prompts to eat, child compliance, and mother and child weight status." <i>The Journal of pediatrics</i> 149.3 (2006): 330-335.</p> <p>Anderson, Sarah E., and Sarah A. Keim. "Parent–child interaction, self-regulation, and obesity prevention in early childhood." <i>Current obesity reports</i> 5.2 (2016): 192-200.</p> <p>Some other areas that need addressing include:</p> <p>Page 4, line 22: Parental influence on child eating can be positive or negative. These sentences infer that it is negative. Please make this clear. Secondly, it is not just the “authoritarian” parenting style that can negatively shape children’s eating behaviour; it is suggested that this sentence either uses the collective term “parenting styles” or details all parenting styles associated with higher child weight status or poorer diet.</p> <p>The introduction (as per point above) states that child eating can be influenced by parents. Therefore, as currently detailed, the</p> |
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|  | <p>rationale for this current study requires strengthening. For example, why and how might knowledge relating to snacks improve the intervention work that is already being conducted with families?</p> <p>There was variance in whether participants sat alone or shared the station room with other participants during the snack consumption. Please detail whether any differences in meal consumption were observed between those who sat alone and those who shared the station with others. For example, did participants who ate alone consume more than those who shared the station (e.g., due to being less self-conscious about amount eaten or not spending time talking in between bites – if talking was possible across tables).</p> |
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### VERSION 1 – AUTHOR RESPONSE

| Editor/Reviewer Comments   | Author's Response  | Reference page |
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| Reviewer 1: Megan Jarman, Li Ka Shing Centre for Health Research Innovation, University of Alberta, Canada   |  |                |
| R.1.1. This is a large study of objectively measured, unsupervised, snack intake in 11-12year old children and their parents. It is novel in its approach and contributes to the current evidence base. It is well written and I believe acceptable for publication. I have 3 very minor points for consideration.   | Thank you.   |                |
| R.1.2. Introduction. This is well written and nicely summarizes the literature to provide justification for the research question. However I wonder if the authors could include some information on the age of the children in the studies which show small to moderate concordance with the food choices of their parents. As I understand it this is not the case for preschool children and in studies analysing diet at the food group level (e.g. fruits | The literature we cite indicates that parent-child concordance estimates can be stronger when food intake is analyzed at the nutrient vs food group level, and among younger children (including in the preschool age group). We have added the following detail to our Introduction on page 5: "Previous population studies have reported small-to-moderate parent-child concordance of dietary choices.(23-29) Though the majority of these studies focus on preschool or school aged children (3 to 14 years),(25-28) one focused on adult offspring (18 to 23 years),(29) and two included very broad age ranges | 5              |

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| and vegetables), rather than a nutrient level (energy intake).  | (1 to 30 years),(23 24) but created tighter age groups for analyses. Overall, concordance estimates appear to be stronger at the nutrient level than at the food group level. One of these studies indicated that, as the age of children increases, parent-child dietary concordance decreases. Although this result may reflect children's increasing autonomy and a reduction in parental influence as they age, it was only obtained for the measure of overall diet quality and not for nutrient-level analyses.(23)"                      |                |
| <p>R.1.3. Discussion. I like that the authors have considered the 'bigger picture' in their analysis and identified the possible wider impact of eating these snacks daily.</p> <p>However the authors may like to just comment on the fact that in this study parents and children are outside of their normal setting i.e. in a study centre not their home or other location at which they may usually consume snacks and therefore this may not be a reflection of usual behaviour.</p> | <p>Thank you, we have added the following sentence into the Strengths and Limitations section of the Discussion (page 16, lines 30-32):<br/> "Additionally, given that participants were observed in a study centre rather than their usual environment, their intake might not fully reflect their usual snacking behavior."</p>   | 16             |
| <p>R.1.4. Unanswered questions and future research<br/> This paragraph doesn't read very well – I'm not sure if it has words missing e.g. do the words 'is warranted' (or alike) need to be added to the end of the first sentence? At the moment it reads like bullet points that are not in bullet point form. I think the points are appropriate it just needs</p>   | <p>We have edited this paragraph on page 18 to now read: "This study warrants further research into the complex mechanisms driving parental influence on children's independent snack intake. Such research will require large sample sizes so it is adequately powered to detect low concordances for individual parent-child pairs, as reported in the current and previous studies. Tackling poor nutrition in childhood and its associated morbidity likely requires an integrated, multifaceted approach, which may include modifiable</p> | 18             |

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| wording better to improve the flow.   | mechanisms such as learned behaviour transmitted from parent to child.”   |                |
| Reviewer 2: Heidi Bergmeier, Monash Centre for Health Research and Implementation, Australia  |   |                |
| R.2.1. The current study is one of very few that uses objective measures of parent and child food consumption and benefits from having a large sample size. It must be acknowledged that this method of obtaining data is quite an undertaking and the authors must be commended on the impressive effort.  | Thank you.  |                |
| R.2.2. While the study provides further evidence showing relationships between parent-child dyad eating, it is less clear how it will contribute toward improving childhood obesity interventions. As described in the introduction, it is already known that parents shape children's dietary habits through a range of methods, including modelling and feeding practices. Also, there are existing childhood obesity interventions that focus on parents/families, not just individual-level dietary consumption. Therefore, the paper would need to present a much stronger case outlining how it advances intervention/prevention science before it can be considered for publication. For example, other research has now progressed to | Thank you. The line of research suggested by the reviewer is of great interest to our own program, although not the aim of this specific paper. Most studies on parent-child eating examine eating in situations with both present (including those recommended by the reviewer), and mostly look at parenting behaviors in direct interaction with the child. However, we wanted to examine something quite different – how parent's eating behavior relates to children's eating behavior when they are not with their parent. Observing the eating behaviors of parents and children separately allowed us to examine whether evidence from earlier studies generalizes towards situations where the parent cannot exert any direct influence on the child's eating behavior. Our observational study may provide insights into what degree of food choices may be learned, ingrained or under genetic influences, although our study design does not permit these influences to be teased apart. Please see our response to R.2.4 and our updated text in paragraph 2 of the Introduction (page 4) to help clarify. | 4              |

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| <p>attempting to understand not just what parent-child dyads eat, but why and how, in order to identify ways to best support behaviour modification that will lead to childhood obesity prevention/reduction. The following example papers may be helpful:</p> <p>Lumeng, Julie C., et al. "Observed assertive and intrusive maternal feeding behaviors increase child adiposity–." <i>The American journal of clinical nutrition</i> 95.3 (2012): 640-647.</p> <p>Lumeng, Julie C., and Lori M. Burke. "Maternal prompts to eat, child compliance, and mother and child weight status." <i>The Journal of pediatrics</i> 149.3 (2006): 330-335.</p> <p>Anderson, Sarah E., and Sarah A. Keim. "Parent–child interaction, self-regulation, and obesity prevention in early childhood." <i>Current obesity reports</i> 5.2 (2016): 192-200.</p> |   |                |
| <p>R.2.3. Page 4, line 22:<br/>Parental influence on child eating can be positive or negative. These sentences infer that it is negative. Please make this clear.</p> <p>Secondly, it is not just the "authoritarian" parenting style that can negatively shape children's eating behaviour; it is suggested that this sentence either uses the collective term "parenting styles" or details all parenting styles associated with higher child weight status or poorer diet.</p>  | <p>1. Thank you, we agree and have updated our wording on page 4, line 12 to now read "Children may be both positively and negatively influenced by their parent's eating behaviour through a number of mechanisms".</p> <p>2. Thank you, we have augmented this sentence to acknowledge that various parenting and feeding styles impact children's intake (whether positively or negatively), and included two additional supporting references as below (page 4, lines 14-20).<br/>"Parents select the food that is available to their children within the home. They may also model eating behaviour that children learn to imitate, or may influence their</p> | 4              |

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|  | <p>children's intake through varying general parenting and/or specific eating practices (e.g. authoritative parenting, indulgent feeding, pressure to eat).<sup>17-19</sup></p> <p>References:</p> <p>Vollmer RL, Mobley AR. Parenting styles, feeding styles, and their influence on child obesogenic behaviors and body weight. A review. <i>Appetite</i>. 2013 Dec 1;71:232-41.</p> <p>Shloim N, Edelson LR, Martin N, Hetherington MM. Parenting styles, feeding styles, feeding practices, and weight status in 4–12 year-old children: a systematic review of the literature. <i>Frontiers in psychology</i>. 2015 Dec 14;6:1849</p>  |                |
| <p>R.2.4. The introduction (as per point above) states that child eating can be influenced by parents. Therefore, as currently detailed, the rationale for this current study requires strengthening. For example, why and how might knowledge relating to snacks improve the intervention work that is already being conducted with families?</p> | <p>We have clarified this study's specific interest in how parental influence (be it genetic or otherwise) affects children's choice when not in their parent's presence. We have augmented this paragraph on page 4 (lines 14-20) to now read: "Parents select the food that is available to their children within the home. They may also model eating behaviour that children learn to imitate, or may influence their children's intake through varying general parenting and/or specific eating practices (e.g. authoritative parenting, indulgent feeding, pressure to eat).<sup>17-19</sup> All these variables, along with any genetic influences, may shape children's eating behaviour, such that eating patterns become ingrained and present even when eating occurs away from the parent and/or family environment."</p> <p>Our contribution is in examining one area that is very relevant to intervention, but for which there is little evidence. That is, we are focusing on older children's snack food consumption that occurs away from and independent of their parents (a common occurrence, and one that could contribute a great deal</p> | 4              |



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|   | <p>to the obesity epidemic). We have updated the end of paragraph 2 (page 4, lines 24-27) to read: "Strong concordance might indicate that snack intake could be mainly targeted via family interventions. On the other hand, low concordance would support interventions that also target the child as an autonomous individual and/or their non-home environments."</p> <p>In summary, we are interested in how parent's behaviours/food intake could potentially indirectly influence children's behaviour/food intake when apart, not when together in a family unit.</p>  |                        |
| <p>R.2.5. There was variance in whether participants sat alone or shared the station room with other participants during the snack consumption. Please detail whether any differences in meal consumption were observed between those who sat alone and those who shared the station with others. For example, did participants who ate alone consume more than those who shared the station (e.g., due to being less self-conscious about amount eaten or not spending time talking in between bites – if talking was possible across tables).</p> | <p>We have clarified our Methods on page 7 to specify that participants sharing the station mainly occurred during busy school holiday periods, lines 27-31 "Most individuals participated in Food Stop by themselves. During busy school holiday periods, an unrelated child and parent were frequently in Food Stop at the same time but seated separately, and very occasionally three or four participants attended Food Stop at the same time."</p> <p>In addition, in Table 3 we now note that sensitivity analyses excluding children who had their snack in the same room as other participants did not change the results. Related, on page 16 in the Limitations (line 32) we have added: "when it was not possible for individuals to be in Food Stop alone, they had their snack in the same room as but separate from one (and occasionally more than one) unrelated individuals. In a final sensitivity analyses, we re-ran our analyses only with the children who ate entirely alone; results were virtually unchanged."</p> | <p>7<br/>14<br/>16</p> |