Author's response to reviews

Title: Nutrition promotion approaches preferred by socioeconomically disadvantaged Australian adolescents: a qualitative study

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Author's response to reviews: see over
Dear Editor,

Reviewer comments and author responses for Manuscript No.: 1524195445142811 "Nutrition promotion approaches preferred by socioeconomically disadvantaged Australian adolescents: a qualitative study".

We thank the Reviewers for the detailed, thoughtful analysis and comments on our paper which were greatly appreciated. In the reviewers’ descriptive overview/comments, a number of issues were raised:

Reviewer 1: Andrea Goldschmidt

Reviewer’s report:
This manuscript qualitatively examined potential strategies and preferred dissemination methods of nutrition promotion initiatives among socioeconomically disadvantaged adolescents in Australia. The study addresses an important question given that socioeconomically disadvantaged youth are at elevated risk for poor eating habits and thus may especially benefit from targeted nutrition promotion interventions. Strengths of the study include the theoretical basis for the qualitative data collection. The primary limitation is the insufficient detail regarding why strategies/formats of interventions targeting improved nutrition in socioeconomically disadvantaged youth would differ from those targeting other populations. I wonder if similar themes would have been identified in any sample of adolescents. Another limitation was the lack of qualitative data from the parents, who, at the very least, should be minimally involved in adolescents’ nutrition habits by nature of sharing the home environment, contributing to family meals, etc.

a) The primary limitation is the insufficient detail regarding why strategies/formats of interventions targeting improved nutrition in socioeconomically disadvantaged youth would differ from those targeting other populations.

Further evidence demonstrating the necessity for intervention strategies and formats designed specifically for socioeconomically disadvantaged adolescents has been included as follows (Page 4, Lines 83-96): “To date, interventions aimed at improving diet conducted among adolescents from all SEP levels have not reported findings stratified by SEP, making it difficult to determine the effectiveness of such interventions among disadvantaged adolescents in comparison to those who are more advantaged. However, interventions may unintentionally result in widening socioeconomic disparities in diet (Darmon et al 2014). For example, among adults, while a reduced-pricing intervention resulted in improvements in nutritional quality of foods purchased by disadvantaged women (who chose greater quantities of less healthy foods at baseline compared with more advantaged women), overall improvements were significantly lower among disadvantaged women than more advantaged women (Darmon et al 2014). It is difficult
to determine if dietary interventions focused on adolescents from all SEP levels result in similar increases in socioeconomic disparities in diet, yet the study conducted by Darmon and colleagues (2014) suggests there is need for messages and strategies aimed at improving dietary intakes to be tailored specifically for socioeconomically disadvantaged groups.”

b) I wonder if similar themes would have been identified in any sample of adolescents.

While the authors agree this is an interesting question, it was beyond the scope of the present investigation to investigate the views of more advantaged adolescents (i.e. those attending schools in more advantaged neighbourhoods in metropolitan and non-metropolitan regions of Victoria, Australia).

The authors also acknowledge that it may be possible that several similar themes perceived to influence adolescent eating behaviours would be identified by adolescents irrespective of their socioeconomic position. However, given the importance of identifying influences and strategies that could be applied in tailored interventions aimed at improving eating behaviours among socioeconomically disadvantaged adolescents (as described above), additional themes and strategies supportive of healthy eating as identified by disadvantaged adolescents are worthy of investigation.

c) Another limitation was the lack of qualitative data from the parents, who, at the very least, should be minimally involved in adolescents’ nutrition habits by nature of sharing the home environment, contributing to family meals, etc.

A study was conducted among parents of the adolescents who participated in the present investigation (it is anticipated that strategies and preferred dissemination methods as identified among parents of adolescents will be published at a later date).

The following was therefore added to the methods section (Page 8, Lines 186-188): “A study was conducted among parents of the adolescents participating in the present investigation, and strategies and preferred dissemination methods as identified by parents will be reported elsewhere.”

Major compulsory revisions:

1. Please address the two limitations noted above. Also, it appears from Table 2 that the sample was actually quite socioeconomically advantaged, judging by the parent education level. This must be reconciled in text.

As suggested, the reference to participants being ‘disadvantaged’ has been removed throughout the results and discussion sections of the manuscript.

However, it should be noted that while great efforts were made to engage socioeconomically disadvantaged adolescents in the present investigation, and while those who participated were more advantaged according to parental highest level of education, these adolescents attended schools in socioeconomically disadvantaged metropolitan and non-metropolitan suburbs of Victoria. The dietary behaviours of these adolescents could therefore be influenced by limitations of the local food environment including reduced availability and quality of fruits and vegetables (Giskes et al., 2002b; Molaison et al., 2005; Reicks, Randall & Haynes 1994; Treiman et al., 1996), and reduced cost of unhealthy foods (Cummins & Macintyre 2002).
The following is already included in the limitations section of the manuscript: “Repeated efforts were employed to recruit socioeconomically disadvantaged families by sampling from neighbourhoods defined as disadvantaged using an area-level measure (SEIFA), and while a proportion of participants had higher SEP when based on an individual-level measure, these participants would still face nutritional challenges associated with attending schools in disadvantaged neighbourhoods (Svastisalee, Holstein and Due, 2014; Forsyth et al 2012; Richardson et al 2012).”

Minor essential revisions:

Abstract

2. In the “conclusions” section, it is suggested to briefly comment on whether or not such strategies have been shown to helpful in adolescent nutrition interventions, if such data exist in the literature. It could be argued that factors that one perceives to be helpful in treatment do not actually relate to outcome.

The conclusions section of the abstract was modified to read (Page 2, Lines 43-49): “Conclusions: A number of suggested strategies and methods identified in the present investigation have been employed with success in previous nutrition promotion interventions targeting socioeconomically disadvantaged adolescents. The present study also contributes novel insights into potential strategies and methods that could be employed in initiatives aiming to improve eating behaviours in this vulnerable group, and particularly highlights the importance of incorporating strategies involving parents and modifying the home food environment.”

Background

3. It might be worth briefly mentioning why it is especially important to promote nutrition in disadvantaged samples. Are socioeconomically disadvantaged adolescents more likely to develop nutrition-related medical conditions and/or less likely to receive treatment once these conditions occur?

The following was added to the background (Page 4, Lines 81-82): “Socioeconomically disadvantaged adolescents are more prone to developing nutrition-related disease risk factors when compared with more advantaged adolescents (Darnton-Hill, Nishida & James 2004).”

4. On lines 57-60, I would be interested to know which intrapersonal, social, and environmental factors were targeted (just a few examples would suffice). It would also be helpful to briefly describe the outcome of any nutrition interventions that have specifically targeted disadvantaged youth

The text was amended to read (Pages 5, Lines 101-107): “…targeting intrapersonal (e.g. raising awareness of current eating behaviours (Di Noia, Contento & Prochaska 2008; Frenn et al., 2003; Frenn, Malin & Bansal 2003), nutrition knowledge (Frenn et al., 2003; Frenn, Malin & Bansal 2003; Frenn et al., 2005a), goal setting and improving behavioural capabilities (Contento et al., 2010)), social (e.g. peer role-modelling of healthy eating (Frenn et al., 2003; Frenn, Malin & Bansal 2003) and communicating about healthy eating with an individual who showed interest such as friends, parents (Di Noia, Contento & Prochaska 2008; Frenn et al., 2003)), or environmental (e.g. the school food environment (Bere, Veierod & Klepp 2005))” constructs and mediators.
Methods

5. Targeting adolescents for the qualitative study pre-supposes that parents won't be involved in treatment. Was this intentional? Is there any benefit from querying parents?

As described above in our response to Reviewer 1 (in point c above), parents were interviewed in a second component of the study that is not presented in this manuscript. It is anticipated that any future intervention design would include parental involvement.

6. Why were Catholic school targeted? Are Catholic schools in Australia tuition based?

Catholic secondary schools were targeted for pragmatic reasons (i.e. due to time constraints, it was deemed necessary to approach schools through the Catholic Education Office Archdiocese of Melbourne as ethical clearance could be provided promptly).

As Catholic schools in Australia require a small fee be paid by enrolled students adolescents from these schools potentially may be more advantaged than those from tuition-free government schools, therefore restricting recruitment to these schools only may represent a source of bias in the present investigation.

To address why Catholic secondary schools were targeted, the following has been added to the methods section of the manuscript (Page 6, Lines 138-140): “Catholic secondary schools were targeted for pragmatic reasons (i.e. due to time constraints on conducting the study it was deemed necessary to approach such schools as ethical clearance could be obtained promptly).”

And

To address potential bias due to recruiting from Catholic secondary schools, the following was added to the limitations section of the manuscript (Page 24, Lines 572-577): “…families. These schools also require a small tuition fee be paid by enrolled students, and adolescents from these schools may therefore be more advantaged than those from tuition-free government schools. Restricting recruitment to these schools only may represent a source of bias in the present investigation. However it was necessary to be pragmatic in recruiting as these were schools in which gaining ethical clearance was faster when compared to government-run schools…”

7. On lines 131-132, does “saturation of content” simply reflect that adolescents were repeating themes that had been discussed previously?

Yes, saturation of content does mean that adolescents were repeating themes that had been discussed previously in other interviews.

The text has been amended to read (Page 8, Lines 181-183): “Adolescents continued to be recruited to the study (n=22) until interview data showed saturation of content (i.e. adolescents were repeating themes that had been discussed previously in other interviews).”

8. Were interviews conducted in schools? How were parent data collected? Was there any specific reason for conducting interviews individually rather than in a group setting?

Interviews were conducted by telephone (the adolescents were usually telephoned at their home), and parent data was collected by telephone at the time when interviews were being booked.
Interviews were conducted individually as adolescents resided across Victoria, making it very difficult to gather the participating adolescents (or their parents) for focus groups.

The text has been modified to read (Page 7, Lines 170-172): “...parents were contacted by telephone to arrange bookings for interviews and to gather their sociodemographic data. All interviews took place over the telephone.”

And

(Pages 7-8, Lines 172-175): “Interviews were conducted individually as adolescents resided across a wide geographical area (metropolitan and non-metropolitan regions of Victoria, Australia), making it difficult to gather the participating adolescents for focus groups.”

9. Was there any measure of parental income?

As questions about income tend to be considered sensitive and therefore remain unanswered, this information was not asked of parents. The limitation of this is that a comprehensive description of the socioeconomic position of the adolescent could not be provided.

The following was therefore added to the limitations section of the manuscript (Page 23, Lines 564-565): “Further, as parents were not asked to report their income, a more comprehensive description of adolescent SEP could not be provided.”

Results
10. It would be helpful to provide some data on how frequently particular strategies were touched on/discussed by adolescents. Which were the most popularly endorsed strategies?

The text at the start of the results section has been modified to read (Pages 10-11, Lines 243-250): “Adolescents suggested a number of strategies as potentially useful for improving adolescent eating behaviours, with the most commonly cited strategies including increased availability and accessibility of healthy foods and decreased availability and accessibility of unhealthy foods and increased cooking involvement. Adolescents also often suggested needing parental and peer support to eat healthily and needing to increase awareness about healthy eating. Other strategies that were cited less often, but identified as important, included regular participation in family meals and increased role-modelling of healthy eating. These main themes are described below.”

Discussion
11. Overall, the discussion section is quite long and could be scaled back. It is suggested to select a few key findings and discuss those in terms of specific intervention strategies, rather than discussing each theme.

As recommended, the discussion has been reduced in length.

12. I appreciated the discussion of how the themes mapped onto themes identified as efficacious (or non-efficacious) in promoting nutrition in the literature.

13. It is mentioned that interviews were conducted on the phone, but I did not see this mentioned in the methods section.
As addressed in our response to Point 8 raised by Reviewer 1, the methods section has been amended accordingly.

Reviewer 2: Jayne Fulkerson

Reviewer's report:
Thank you for the opportunity to review this manuscript describing a qualitative study investigating nutrition promotion approaches that could be used for socioeconomically disadvantaged Australian adolescents. The research questions were well described and the methods and analysis were appropriate. The limitations are clearly stated and thorough. The findings demonstrate useful suggestions for adolescent-focused interventions for healthful eating. However, attention to the following issues may improve the clarity and reach of the manuscript.

Major Compulsory Revisions:

1. Given that only about half of adolescents in the study were from disadvantaged backgrounds/households, I question whether the current literature focus and description of previous studies is adequately representative. Although the authors focus the literature on disadvantaged youth, perhaps studies of general populations of adolescents are similar to what was found in the present study and recommendations would not necessarily have to be limited to disadvantaged adolescents (could increase reach). Or perhaps many of the recommendations would be similar across socioeconomic strata but there are some specific to disadvantaged youth.

The following was added to the discussion (Page 19, Lines 455-463): “When SEP was defined using an individual-level measure of SEP (i.e. parental level of education), more participants were from advantaged backgrounds. Therefore the findings in the present investigation could be transferrable for implementation in nutrition promotion messages and strategies targeting adolescents from the wider population irrespective of SEP. These strategies have had previous success in improving adolescent diet across socioeconomic strata. For example, increased awareness about healthy eating (Bogart, et al 2014), increased parental support to eat healthily (Van Lippevelde et al, 2012), increased peer support to eat healthily (Ezendam, Brug and Oenema 2012), and increased availability and accessibility of healthy foods and decreased availability and accessibility of unhealthy foods at home (Pearson et al, 2010) and at school (Van Lippevelde et al, 2012).”

And

The discussion section was amended throughout as recommended, for example (Pages 19-20, Lines 469-473): “...aimed at changing the home food environment, however a previous pilot study among adolescents from all SEP levels showed that increased availability and accessibility of fruit and vegetables at home resulted in improved consumption of those foods (Pearson et al 2010), confirming these as important potential intervention targets for adolescents from all socioeconomic levels.”

2. More information about the small number of interventions aimed at improving dietary intakes of disadvantaged adolescents is needed (see first paragraph of background). Much more text is provided to describe the observational studies conducted to date, but the intervention work is perhaps more important and relevant to the authors’ research questions.

Further details of the interventions aimed at improving diet among disadvantaged adolescents has been included in the introduction as per our response to Reviewer 1’s point #4.
3. More information is needed regarding the approximate number of adolescents who were distributed recruitment materials, invited to participate in the study, the participation rate and how representative these students are of the total student body (I am not convinced that qualitative studies do not consider representativeness).

The methods section of the manuscript was modified to read (Page 7, Lines 154-157): “To recruit adolescents, 9 eligible schools were initially posted an invitation to participate and were followed up by telephone to confirm interest in the study. Participating schools (n=4) were sent a secondary school plain language statement and consent form, to be completed by the Principal. A total of n=1501 (n=744 Year 7 and n=757 Year 8) students…”

And

(Page 8, Line 175): “Adolescent participants (n=22, 1.5% response rate) were informed…”

And

(Page 9, Lines 206-213): “The sample was relatively representative of the wider population of young adolescents enrolled in Years 7 and 8 in Victoria, Australia. Equal proportions of girls and boys were recruited, the majority of adolescents were from metropolitan Victoria, and more adolescents were enrolled in Year 8 than Year 7. In terms of socioeconomic position (based on maternal and paternal education), the sample was less representative of the wider population. Only a small proportion of low SEP adolescents were recruited (<15%), and 45% of adolescents were of high SEP based on maternal education, while 53% were medium SEP based on paternal education.”

4. In the US, alternative high school youth are at-risk with many of them socioeconomically disadvantaged and there are several publications on this population that appear to be relevant to this manuscript.

The following was added to the discussion (Page 22, Lines 526-528): “Further, among disadvantaged adolescents frequent participation in family meals is positively associated with frequent consumption of breakfast and daily fruit intake (Fulkerson et al 2009).”

5. The authors may want to provide specific suggestions for parental involvement, particularly if parents from low socioeconomic households are working several jobs and time is limited.

The following was added to the discussion (Pages 21, Lines 510-519): “Parents, particularly those who only have limited time available, could increase their involvement in promoting healthy eating to their adolescents by including adolescents in all stages of meal preparation (e.g. meal planning, preparing a shopping list, doing the shopping, preparation and cooking). Such strategies could be integrated with other time-saving tactics for preparing meals (e.g. cooking dinner ahead of time the night before, or using a slow cooker), cooking foods in bulk and freezing excess for later meals, and purchasing pre-prepared healthy foods in packs (e.g. salad).”

Minor Essential Revisions:

6. There were several typographical errors and missing commas (e.g., first line of background, last sentence of data analysis section).

The manuscript was rescreened for such typographical errors and amended accordingly.
7. **Should “cater for taste preferences” be “cater to taste preferences”?**

   As suggested, “cater for taste preferences” was changed to “cater to taste preferences” throughout the manuscript.

8. **“Healthily” is not a proper word and should be replaced with “healthful” or “healthfully”**.

   As recommended, “healthily” was replaced with “healthful” or “healthfully” throughout the manuscript.