Author’s response to reviews

Title: Parent–child cooking meal together may relate to parental concerns about the diets of their toddlers and preschoolers: a cross-sectional analysis in Japan

Authors:

Midori Ishikawa (ishikawa.m.aa@niph.go.jp)

Kumi Eto (ekumi@eiyo.ac.jp)

Miki Miyoshi (m_miyoshi@auhw.ac.jp)

Tetsuji Yokoyama (yokoyama.t.aa@niph.go.jp)

Mayu Haraikawa (mharai@seitoku.ac.jp)

Nobuo Yoshiike (n_yoshiike@auhw.ac.jp)

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The Editorial Board

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Title: Parent–child cooking meal together may alleviate parental concerns about the diets of their toddlers and preschoolers: a cross-sectional analysis in Japan

Authors: Midori Ishikawa; Kumi Eto; Miki Miyoshi; Tetsuji Yokoyama; Mayu Haraikawa; Nobuo Yoshiike

Nutrition Journal

Thank you for the editorial and peer reviewer comments on our manuscript. Please find attached a revision of the manuscript, changed to reflect the comments made by the reviewers. Changes to the text are marked in red. Our point-by-point responses to the comments are listed below.
Reviewer reports:

Reviewer #1:

In the abstract section

Number of samples used from the national survey would be better if clearly stated. Type of statistical analysis should also be described clearly.

Comment

In the background section

It is good that the author had described existing program in Japan that related to parent-child cooking class (shokuiku), however, the authors perhaps could embark on reviewing the existing literature about parent-child cooking and its association to healthy diets, even if it was not done in Japan.

Response

Thank you for your suggestion. Several comments were made by the reviewers and the editor about the background section. Therefore, we revised the entire text and the corresponding references in the background section as follows:

Lines 40–68

Dietary intake and eating habits developed in early childhood affect the development of school-aged children [1]. Furthermore, eating behaviors affect health and nutritional status in adulthood, and the onset of lifestyle-related diseases [2–4].

According to the “National nutrition survey on preschool children” conducted in Japan [5], about eighty percent of parents expressed frequent concerns about the dietary habits of their children, such as “taking too much time to eat,” “picky eating (eating only certain foods),” “inconsistent food intake (eating too much or too little, depending on the day),” “playing with food/utensils while eating,” “preferring sweetened beverages and snacks over meals,” and “eating too fast to chew well.”

There have been several reports on how parents can alleviate dietary-related concerns in school-aged children. Some claim that cooking a meal together with others in school or preschool is an effective way to improve “picky eating,” “eating too fast,” and “preferring sweetened beverages and snacks over meals” [6-8].
Another study reported that the dislike of vegetables and picky eating had improved with classes and practical sessions, including lessons in the school curriculum on cooking meals, as well as food and nutrition (shokuiku in Japanese) [9]. Even in early childhood, some nursery schools and kindergartens have incorporated parent–child cooking classes in shokuiku programs, and reported that this strategy can effectively improve a child’s dislike of vegetables [9,10].

However, the formation of dietary behaviors in the preschool period might be related to the dietary habits of the parents [11-15]. Cooking is a repeated behavior related to dietary practices at home and some parents may cook a meal together with a young child. Nevertheless, relatively few studies have investigated the influence of parent–child cooking activities at home on the dietary behaviors of children and whether such activities can alleviate parental concerns regarding the dietary habits of young children [6].

We hypothesized that “a parent cooking meals together with a young child” might alleviate parental concerns about the dietary habits of their children, such as “taking too much time to eat,” “eating only certain foods,” “eating inconsistent amounts of food,” “playing with food/utensils while eating,” “preferring sweetened beverages and snacks over meals,” and “eating too fast to chew well” as well ”inconsistent food intake.”

New references


Comment

In the method section

In page 5 line 83, it would be better if the authors provide citation or link related to the sampling technique and sample size calculation of the national survey.
Response

Thank you for the advice. An additional reference was cited in the revised manuscript related to the sampling technique and sample size calculation of the National nutrition survey on preschool children conducted in Japan. [5]

Lines 80–82

In total, 2,992 households with 3,936 children aged ≤6 years participated in the survey. The questionnaires of 65 children were excluded because information on age was not available. Finally, 3,871 questionnaires were collected for analysis [5].

Reference


Comment

In page 6 line 109 the term "food frequency index" should be made consistent with legend in Table 5 "food variety score". Also, in the method how would the food variety score calculated? Please refer to guidelines for example by FAO for citation.

Response

Thank you for the suggestion. The Methods section was revised accordingly and a corresponding reference was added:

Lines 104–105

Furthermore, the food diversity score (FDS) was used to assess the nutritional quality of the whole diet [16].

Line 140

Finally, the frequency of food intake between the two groups was compared.

Lines 144–148

The FDS and the processed food score were compared between the two groups [16]. The FDS was 1 point if once or more a day or 0 points if less than that. There were eight types of food, thus the maximum score was eight points. Similarly, the processed food score was calculated as
a score of 1 point if at least once a day or 0 points if less than that. There were four types of food, so the maximum score was four points.

New Reference


Comment

In page 7, the nutritional status, why did the authors use the BMI formula instead of BMI-for-Age which is more robust for measuring children? Furthermore, the height of the children was not actual measurement, what will be the implication of this methods? It should be discussed in the limitation section.

Response

The standard body weight was calculated using the formula of standard body weight for height in Japanese children based on the “Japanese National Growth Survey for infants and children in 2000,” which was a nationwide survey with representative sampling [17,18]. Based on the recommendations of the Japanese government, this formula was used to assess the growth of children. The formula is not dependent on age because the standard body weight for height curves were almost identical for children aged 1–6 years [19].

The following sentences were added to the Methods section along with the corresponding reference:

Lines 113–121

The nutritional status of children was determined based on body weight and height. The degree of obesity (%) was calculated using the following formula: self-reported body weight (g) – standard body weight (g) for height/standard body weight (g) for height × 100. The judgment criteria for the degree of obesity were “obese” (≥30%), “overweight” (20%–30%), “tendency to be overweight” (15%–20%), “standard” (−15% to +15%), “tendency to be underweight”: (less than −15% to less than −20%), and “underweight” (less than −20%). The standard body weight was calculated using the formula of standard body weight for height in Japanese children [17,18]. The formula does not consider age because the standard body weight for height curves were almost identical for children aged 1–6 years [19].

New references
Comment

In the results section

How did the fact that the "cooking together" group had more leisure time affect the observed association that cooking together promotes healthy diets?

Did your analysis show the analysis before adjusting for leisure time?

Response

Thank you for your comment.

According to the results in Tables 1 and 2, the characteristics of the parents or children (child’s sex, employment status of parent, and family living together), and lifestyle (subjective economic status, leisure time, caregiver of the child during the day) were identified as the confounding factors.

We analyzed the association between cooking together and food intake, before and after adjusting confounding factors including leisure time.

The factors were affecting the association between cooking together and healthy diets. Therefore, it was adjusted the factors including "leisure time" in the analysis on frequency of food intake and the parent-child cooking together (in Table 5).

Comment

In page 10, line 175 what did the author mean about making "normalization"? Why the normalization should be done? What was the impact?
Response

The results of Model 1 were before adjusting for leisure time.

Multivariate analysis was performed for each of the 11 concerns using a logistic regression model, adjusted for the characteristics of the parent or child (child’s sex, employment status of parent, and family living together) in Model 1, and in addition for lifestyle factors (leisure time, subjective economic status, caregiver of the child during the day) in Model 2.

As a result of adjusting for leisure time, it became clear that cooking together was associated with parental concerns about the dietary habits of children.

The following sentences in the Methods and Discussion sections were revised to improve clarity.

Lines 129–139

Multivariate analysis was performed for each of the 11 concerns using a logistic regression model, adjusted for the relationship with the child (mother or father), child’s sex, employment status of parent (yes or no), and family members in the household (other children, grandparents, and others) (Model 1).

Additional multivariate analysis was performed for each of the 11 concerns using a logistic regression model, adjusted for the relationship with the child (mother or father), child’s sex, employment status of parent (yes or no), family living together (other children, grandparents, and others), subjective economic status (affluent, somewhat, neither, not so much, or not able to afford at all), leisure time (affluent, somewhat, neither, not so much, not at all), and place where the child spends time during the day (nursery school, kindergarten, center for early childhood education and care, with grandparents, with relatives, staying at home) (Model 2).

Comment

In the discussion a little context about Japanese culture related to parent-child cooking together is good but is it similar to the rest of the world? Or is there a shift in terms of that 'cooking together' culture.

Response

Thank you for your comment.

The following text was added to the Discussion section.
A previous study reported that “cooking programs for parents and children through home visits for low income families” [11] and “responsible for child’s cooking” could improve picky eating in a family intervention setting [13]. These findings were similar to those of the present study. However, relatively few studies included school-aged children [12]. Hence, further research is needed.

New references


Comment

In the limitation section, the use of BMI instead of BMI for age should be discussed.

Response

We apologize for the error in this sentence. The text was revised as follows.

The nutritional status of children was determined based on body weight and height. The degree of obesity (%) was calculated using the following formula: self-reported body weight (g) – standard body weight (g) for height/standard body weight (g) for height × 100. The judgment criteria for the degree of obesity were “obese” (≥30%), “overweight” (20%–30%), “tendency to be overweight” (15%–20%), “standard” (−15% to +15%), “tendency to be underweight”: (less than −15% to less than −20%), and “underweight” (less than −20%). The standard body weight was calculated using the formula of standard body weight for height in Japanese children.
The formula does not consider age because the standard body weight for height curves were almost identical for children aged 1–6 years [19].

New references


Reviewer #2:

The authors present the findings of a study examining the relationship between parents and children cooking together, parental concerns around child eating behaviours and child diet intake.

The authors highlight the importance of understanding and improving infant eating behaviours with a concise review of how eating habits developed early in life can affect health going into adulthood.

The authors wish to extend previous literature which has found parental reports of concerns around child's dietary habits and how nutrition education can improve a child's diet. Although this is an interesting study, I believe it could be improved by addressing the following concerns:

Comment

1) Results reported in the text are not consistent with that displayed in the tables and need to be reviewed.

The authors state that the proportions of "he/she is a picky eater", "he/she plays with food/utensils while eating" and "he/she eats too much" are higher in the "cooking together" group than the "not cooking together" group (page 9-10, line 170-172).
Table 3 shows that the percentage of concerns for "he/she is a picky eater" and "he/she plays with food/utensils while eating" are significantly higher in the "not cooking together" group.

Response

We apologize for the error in this sentence.

The description in the original version of the manuscript was incorrect. The text was revised as follows:

Lines 171–173

In the “not cooking together” group, the proportions of “picky eating (eating only certain foods)” (p = 0.034), “playing with food/utensils eating a meal while eating” (p = 0.007), and “he/she eats too much” (p = 0.036) were higher than in the “cooking together” group.

Comment

2) The conclusion (page 13, line 258-259) states that cooking a meal with one's child may alleviate concerns around the child eating too much.

As Table 3 shows that the percentage of concerns around the child eating too much is significantly higher in the "cooking together" group, the conclusion may need to be reviewed.

Response

Thank you for your comment.

In Table 3, the "not cook together" group (4.6%) was less concerned about “eats too much” than the "cooking together" group (7.7%). However, as described in Table 4, the logistic analysis showed that "not eating too much" was 0.57 times more than "eating too much" by "cooking together".

The text in the Discussion and Conclusion sections were revised accordingly.

Lines 199–202

The study results also confirmed that “parent–child cooking meals together” was associated with “not picky eating,” “not playing with food/utensils while eating,” and “eating too much.” The reason for the increase in the factor of “eating too much” may be due to the participation of the child in meal preparation.

Lines 276–279

Conclusions
Cooking a meal together with children may help to alleviate the concerns of parents about the diets of their children, such as “picky eating” and “playing with food/utensils while eating,” but may be related to an increased incidence of “eating too much.”

Comment

3) Greater clarification and justification of analyses are needed as it is not clear from the text.

A) The authors do not explain what type of analysis was used for the participant demographic data (page 7, line 128).

Response

Thank you for your suggestion. The text was revised as follows:

Lines 124–127

By classifying the parents into two groups, parents who cooked meals together with their children (“cooking together”) and those who did not (“not cooking together”), the parents’ sex, age, and socioeconomic status as well as the sex, nutritional status, food allergies, tooth decay, and time spent on TV, video, and games of children were compared.

Comment

B) The authors state that they used "univariate analysis for each of the 11 concerns using a logistic regression model" (page 7, line, 130) and "stepwise univariate analysis" (page 10, line 173).

Stepwise logistic regression and univariate analysis are different analyses.

Univariate analysis is a single variable assessment and a stepwise approach cannot be used because of it.

Response

The text was revised as follows.

Lines 129–139

Multivariate analysis was performed for each of the 11 concerns using a logistic regression model, adjusted for the relationship with the child (mother or father), child’s sex, employment status of parent (yes or no), and family members in the household (other children, grandparents, and others) (Model 1).
Additional multivariate analysis was performed for each of the 11 concerns using a logistic regression model, adjusted for the relationship with the child (mother or father), child’s sex, employment status of parent (yes or no), family living together (other children, grandparents, and others), subjective economic status (affluent, somewhat, neither, not so much, or not able to afford at all), leisure time (affluent, somewhat, neither, not so much, not at all), and place where the child spends time during the day (nursery school, kindergarten, center for early childhood education and care, with grandparents, with relatives, staying at home) (Model 2).

Comment

4) Some clarification is needed around the methodology.

A) The authors list child eating behaviours (page 6, line 100-106) and state "for all questions, the parent answered with a 'yes' or a 'no'" (page 6, line 100-106). Reporting the question or statement prior to the listed child eating behaviours would help improve reproducibility of methodology and understanding.

Response
We agree that the explanation was insufficient.

We asked parents to answer “yes” or “no” about the eating behavior of children “in daily life.”

Lines 97–102

Parental concerns about the daily dietary habits of their children consisted of 11 items: “taking too much time to eat (slow eaters),” “picky” eating (eating only certain foods),” “the amount of inconsistent food intake (too much or too little, depending on the day),” “playing with food/utensils while eating,” “preferring sweetened beverages and snacks over meals,” “too little food intake,” “eating too fast to chew well,” “not swallowing food,” “disinterested in eating, “eating too much,” and “spitting out food.” For all questions, the parent answered with a “yes” or “no.”

Comment

B) The authors state that nutritional status of the children is determined based on the child's reported height and weight data. However, the calculation reported (page 7, line 118-119) only uses the child's weight to determine the nutritional status categories. It is unclear how height is used.

Response
The text in the Methods section was revised and additional references were added as follows:

Lines 113–121

The nutritional status of children was determined based on body weight and height. The degree of obesity (%) was calculated using the following formula: self-reported body weight (g) – standard body weight (g) for height/standard body weight (g) for height × 100. The judgment criteria for the degree of obesity were “obese” (≥30%), “overweight” (20%–30%), “tendency to be overweight” (15%–20%), “standard” (−15% to +15%), “tendency to be underweight”: (less than −15% to less than −20%), and “underweight” (less than −20%). The standard body weight was calculated using the formula of standard body weight for height in Japanese children [17,18]. The formula does not consider age because the standard body weight for height curves were almost identical for children aged 1–6 years [19].

New references


Comment

C) I would like to offer the recommendation to rephrase the category "tendency to be fat" (page 7, line 120) to "tendency to be overweight" so that it is in line with how it is reported in Table 2 ("overweight tendency").

Response

We apologize for the error in this sentence. We corrected it as follows.

Lines 116

“tendency to be overweight”
5) The study hypothesis is that "a parent cooking meal together with the young child' might alleviate his/her concerns pertaining to the diets of their children… as well as their food intake."

The authors state that there is limited research examining the parent-child relationship and alleviating parental concerns around child diet so far (page 3, line 51-53). Examples of these studies would help the reader to understand how the present research study furthers existing knowledge and why it is important to alleviate parental concerns around child diet.

A clear link is made between how lessons on cooking can improve child diet and food intake, however the link between parental concerns and child eating behaviour/child diet intake is unclear.

Response

Thank you for your comments. The following text was added to the Discussion section.

Lines 258–261

In this study, there was an association between how lessons on cooking can improve the dietary habits of children and food intake, but not between parental concerns and the eating behaviors/dietary intake of children. Hence, further studies on relationship between parental concerns and child food intake are warranted.

Comment

6) The authors discuss wider research in the discussion, however the results from this study are underemphasized in relation to prior research (page 11-12). The importance of researching parental concerns and cooking a meal together not made clear.

Response

Thank you for your suggestion.

The following text was added to the Discussion section.

Lines 196–206

In the “National nutrition survey on preschool children” conducted in Japan [5], the parental concerns about the eating behaviors of children included “picky eating” and “playing with food/utensils while eating.” However, the behavioral factors of parents that were found to reduce
the concerns about the eating behaviors of children were not analyzed. The study results also confirmed that “parent–child cooking meals together” was associated with “not picky eating,” “not playing with food/utensils while eating,” and “eating too much.” The reason for the increase in the factor of “eating too much” may be due to the participation of the child in meal preparation.

The results of a previous systematic review highlighted the impact of parental involvement in dietary interventions to improve the dietary habits of children [12]. Family-based child nutrition programs are beneficial to all children irrespective of socioeconomic status [11,12] and may be important to expand daily participation in meal preparation [11,14,15].

New references


Associate editor:

Comment

Whilst this is an interesting article and relevant for the readership of Nutrition Journal there are a few issues highlighted by the peer reviewers which would require addressing before we can reassess this manuscript. In addition to the comments from the peer reviewers please see my comments below:

There are grammatical errors throughout the paper just as one example Line 234: Either use the word ‘additionally’ OR ‘also’ they should not appear in the same sentence. Please review.

Response

Thank you for suggestion.

The text in question was revised as follows.

Lines 245–250

This study showed that parent–child cooking a meal together was related to adequate food intake, including tasting a diversity of foods [35]. It was reported that providing early education
in the place where the children spent their days, such as nursery school, kindergarten, etc., was effective in decreasing the intake of an unbalanced diet [35,36]. Additionally, this study identified that parent–child cooking a meal together at home could be important for healthy food intake by children.

Comment

Lines 49-52

“…attitude towards the parents own dietary habits and educating their children has the greatest influence on the formation of infant dietary habits”

Firstly, this sentence is poorly worded – whose attitude towards parents dietary habits? Educating children about what?

Secondly, to say that these factors have the GREATEST influence is a very bold statement to make and needs further clarification.

What studies/analyses are these articles referring to? and the greatest influence relative to which other variables (presumably these articles didn’t assess ALL other possible influences)?

Response

Thank you for your suggestion. Several comments were made by the reviewers and the editor about the background section. Therefore, the entire section and the corresponding references in the background section were revised.

Lines 40–68

Dietary intake and eating habits developed in early childhood affect the development of school-aged children [1]. Furthermore, eating behaviors affect health and nutritional status in adulthood, and the onset of lifestyle-related diseases [2–4].

According to the “National nutrition survey on preschool children” conducted in Japan [5], many parents expressed frequent concerns about the dietary habits of their children, such as “taking too much time to eat,” “picky eating (eating only certain foods),” “inconsistent food intake (eating too much or too little, depending on the day),” “playing with food/utensils while eating,” “preferring sweetened beverages and snacks over meals,” and “eating too fast to chew well.”

There have been several reports on how parents can alleviate dietary-related concerns in school-aged children. Some claim that cooking a meal together with others in school or preschool is an
effective way to improve “picky eating,” “eating too fast,” and “preferring sweetened beverages and snacks over meals” [6-8].

Another study reported that the dislike of vegetables and picky eating had improved with classes and practical sessions, including lessons in the school curriculum on cooking meals, as well as food and nutrition (shokuiku in Japanese) [9]. Even in early childhood, some nursery schools and kindergartens have incorporated parent–child cooking classes in shokuiku programs, and reported that this strategy can effectively improve a child’s dislike of vegetables [9,10].

However, the formation of dietary behaviors in the preschool period might be related to the dietary habits of the parents [11-15]. Cooking is a repeated behavior related to dietary practices at home and some parents may cook a meal together with a young child. Nevertheless, relatively few studies have investigated the influence of parent–child cooking activities at home on the dietary behaviors of children and whether such activities can alleviate parental concerns regarding the dietary habits of young children [6].

We hypothesized that “a parent cooking meals together with a young child” might alleviate parental concerns about the dietary habits of their children, such as “taking too much time to eat,” “eating only certain foods,” “eating inconsistent amounts of food,” “playing with food/utensils while eating,” “preferring sweetened beverages and snacks over meals,” and “eating too fast to chew well” as well ”inconsistent food intake.”

New references


Comment

Lines 52-52: Please provide the references to these ‘few reports’ and then go on to describe them separately.

If I understand this correctly the previous studies on cooking together and improvement in some eating behaviours have largely been carried out in school-aged children and the novel aspect of this current study is that the authors which to establish whether there is an association in younger (pre-school) children?

This could be emphasised more clearly at the end of the discussion. At present it isn’t entirely clear how the authors arrived at their hypothesis or how this is different to the previous literature.

Response

Thank you for your suggestion. Several comments were made by the reviewers and the editor about the background section. Therefore, the entire section and the corresponding references in the background section were revised.

Lines 40–68

Comment

Line 117-122: Do the authors have a reference for how they calculated degree of obesity? Child height does not appear to have been used in the calculation. The following paper may be of use for the authors and it may be worth considering recalculating child BMI using the International Obesity Taskforce guidelines:


Response

The following sentences were added to the Methods section along with the corresponding references.

Lines 113–121

The nutritional status of children was determined based on body weight and height. The degree of obesity (%) was calculated using the following formula: self-reported body weight (g) – standard body weight (g) for height/standard body weight (g) for height × 100. The judgment criteria for the degree of obesity were “obese” (≥30%), “overweight” (20%–30%), “tendency to
be overweight” (15%–20%), “standard” (−15% to +15%), “tendency to be underweight”: (less than −15% to less than −20%), and “underweight” (less than −20%). The standard body weight was calculated using the formula of standard body weight for height in Japanese children [17,18]. The formula does not consider age because the standard body weight for height curves were almost identical for children aged 1–6 years [19].

New references


Comment

Line 187: Here the authors mention a ‘food variety score’ but no information on how this was derived or what it represents is provided in the methods section.

Response

Thank you for your suggestion. The following sentences and the corresponding reference were added to the Methods section.

Lines 104–105

Furthermore, the food diversity score (FDS) was used to assess the nutritional quality of the whole diet [16].

Line 140

Finally, the frequency of food intake between the two groups was compared.

Lines 144–148

The FDS and the processed food score were compared between the two groups [16]. The FDS was 1 point if once or more a day or 0 points if less than that. There were eight types of food, thus the maximum score was eight points. Similarly, the processed food score was calculated as
a score of 1 point if at least once a day or 0 points if less than that. There were four types of food, so the maximum score was four points.

New Reference


Comment

Lines 231-235 “This study…” Which study are the authors referring to here? If referring to the study described in the manuscript then the authors have not demonstrated that parent-child cooking together is related to essential nutrient intake as these analyses have not been presented. If referring to another study (perhaps ref 27?) then this needs to be much clearer.

Response

Thank you for your comment.

In this study, we did not analyze the nutrient intake.

Therefore, we changed the sentences to the expression of food diversity.

Lines 245–250

This study showed that parent–child cooking a meal together was related to adequate food intake, including tasting a diversity of foods [35]. It was reported that providing early education in the place where the children spent their days, such as nursery school, kindergarten, etc., was effective in decreasing the intake of an unbalanced diet [35,36]. Additionally, this study identified that parent–child cooking a meal together at home could be important for healthy food intake by children.

Comment

Line 251: The authors refer to “concerns of the child” but presumably they mean “parental concerns about the child’s eating behaviours” – It is very important to be clear about the statement being made

There is too much emphasis on a possible causal direction of the association between parent-child cooking a meal together and parental concern about the diet of their child.
It is possible that parents who are less concerned about diet related behaviours are more likely to cook with their children.

The conclusion can specify that there is an association between these but the causality of the association needs further exploration.

Response

Thank you for your suggestion. The text of the Discussion section was revised to mention an additional limitation as follows.

Lines 269–272

Second, it is unknown whether the parental concerns about the dietary habits of children are related to childhood development. Furthermore, children may help with cooking because of the lack of motivation of the parents. Therefore, further research is required [6, 11].