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Family meals among parents: Associations with nutritional, social and emotional wellbeing

Jennifer Utter[a,*], Nicole Larson[b], Jerica M. Berge[c], Marla E. Eisenberg[d], Jayne A. Fulkerson[e], Dianne Neumark-Sztainer[b]

[a] University of Auckland, School of Population Health, Private Bag 92019, Auckland 1142, New Zealand
[b] University of Minnesota, Division of Epidemiology and Community Health, 1300 South Second St, Minneapolis, MN 55454, USA
[c] University of Minnesota, Department of Family Medicine and Community Health, 717 Delaware St SE, Minneapolis, MN 55414, USA
[d] University of Minnesota, Department of Pediatrics, 717 Delaware St SE, Minneapolis, MN 55414, USA
[e] University of Minnesota, School of Nursing, 308 Harvard St SE, Minneapolis, MN 55455, USA

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ABSTRACT

A growing body of research suggests that children and adolescents who share frequent meals with their families report better nutrition indicators, family relationships and mental health. Yet, little research has examined whether parents who share meals with their families report the same indicators of wellbeing. The current paper addresses this question using population-based survey data and a sample of parents in the United States (n = 889, mean age 31 years) that responded to the fourth wave of the Project EAT study in 2015–16. Multiple regression models were used to examine associations between frequency of family meals and indicators of nutritional, social and emotional wellbeing, controlling for demographic and household characteristics. Analyses also examined if associations were moderated by sex, as mothers tend to be more responsible for household and childcare tasks. Results suggested that parent report of frequent family meals was associated with higher levels of family functioning, greater self-esteem, and lower levels of depressive symptoms and stress (p-value for all < 0.001). Frequency of family meals was also related to greater fruit and vegetable consumption (both $p < 0.05$), but was unrelated to other indicators of parent body size and nutritional wellbeing. Associations between frequency of family meals and parent wellbeing were similar for both mothers and fathers. Findings from the current study suggest that frequent family meals may contribute to the social and emotional wellbeing of parents. Future strategies to promote family meals should consider the potential impacts on the health and wellbeing of the whole family.

1. Introduction

A growing body of research suggests that frequent family meals support the healthy development of children and young people (Fulkerson et al., 2014; Harrison et al., 2015; Skeer and Ballard, 2013). Family meals are opportunities for families to prepare and share healthy foods. Children and young people who frequently share meals with their families report better nutrition and eating behaviors like eating more vegetables and less fast food (Berge et al., 2016; Fulkerson et al., 2009; Larson et al., 2006; Utter et al., 2013a).

Family meals also provide opportunities for communication, sharing of values and family bonding. Research suggests that adolescents who have frequent family meals report greater family connection and parental monitoring and communication (Elgar et al., 2013; Utter et al., 2013b; Fulkerson et al., 2010). These findings may explain, in part, existing evidence that suggests family meals are protective against adolescent participation in health risk behaviors and promote emotional wellbeing (Elgar et al., 2013; Utter et al., 2013b; Franko et al., 2008; Fulkerson et al., 2006; Utter et al., 2017).

Less is known about the potential nutritional, social and emotional benefits of family meals for parents. Findings from a nationally representative survey in the US found a small, but significant, association between frequent family meals and lower body mass index among parents (Sobal and Hanson, 2011). Another study conducted by our research team found that parents who had frequent family meals ate more fruits and vegetables, fathers ate less fast food, and mothers engaged in fewer dieting behaviors (Berge et al., 2012a). Particularly little research has explored the social and emotional benefits of family meals

* Corresponding author.
E-mail addresses: j.utter@auckland.ac.nz (J. Utter), larsonn@umn.edu (N. Larson), jberge@umn.edu (J.M. Berge), eisen012@umn.edu (M.E. Eisenberg), fulke001@umn.edu (J.A. Fulkerson), neuma011@umn.edu (D. Neumark-Sztainer).

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for parents. As noted above, family meals provide opportunities for family communication and positive engagement. For parents, this may be a useful opportunity to discuss family issues, allocate household jobs or simply engage with family members in a positive way. As such, it is possible that frequent family meals may promote social and emotional wellbeing for parents, as well as children.

It is alternatively possible that frequent family meals come at a cost to parent wellbeing and increase stress, as preparing meals requires time and resources that many parents may not have. This may be particularly true for mothers as women still spend more time doing housework and child care than men (Parker and Wang, 2013). Moreover, more than half of mothers say they find it difficult to balance work and family life (Parker and Wang, 2013). Reducing time spent in preparing meals may be one strategy mothers use to cope (Devine et al., 2006; Horning et al., 2017). Adults who are employed spend less time on home food preparation and place a higher value on convenience foods (Monsivais et al., 2014).

The aim of the current study is to expand what is already known about the relationship between family meals and the health and wellbeing of parents. Specifically, the current research will explore associations between family meals and parental indicators of nutritional, social and psychosocial wellbeing. As women assume more responsibility for household chores, such as meal preparation, the current analyses will also examine whether the associations between family meals and nutritional, social and emotional wellbeing vary by parent sex.

2. Methods

Data for this cross-sectional analysis were drawn from the fourth wave of the population-based Project EAT (Eating and Activity in Teens and Young Adults) longitudinal study of dietary intake, physical activity, weight control behaviors, weight status and factors associated with these outcomes among young adults. At the original assessment (1998–1999), a total of 4746 junior and senior high school students at 31 public schools in the Minneapolis-St. Paul metropolitan area of Minnesota, US completed surveys and anthropometric measures (Neumark-Sztainer et al., 2002a, 2002b). In 2015–2016, original participants who responded to at least one previous follow-up survey were mailed letters inviting them to complete the Project EAT-IV survey and a food frequency questionnaire (FFQ) (Berge et al., 2012b; Goldschmidt et al., in press) with the offer of 50 dollars for survey completion.

Complete follow-up survey data were collected online, by mail, or by phone from 66% of those for whom correct contact information was available (N = 2770) for a final sample of 1830 young adults. Of the 1830 participants in EAT-IV, 49% (n = 889) reported that they had at least one child and were retained for the current analyses. All study protocols were approved by the University of Minnesota's Institutional Review Board Human Subjects Committee.

2.1. Measures

Family meal frequency was assessed with the question, “During the past seven days, how many times did all, or most, of the people living in your house eat a meal together?” Participants could select one of six response options ranging from “never” to “more than 7 times” (Test-retest r = 0.64). The response options were re-categorized to create three categories (0 to 2 times, 3 to 6 times, and 7 times or more) based on distribution within in the sample.

2.1.1. Indicators of social wellbeing

Six items were drawn from the general functioning scale of the Family Assessment Device(Epstein et al., 1983; Miller et al., 1985) to measure overall family functioning. Previous research has shown high validity (r = 0.92) and test-retest reliability (r = 0.71) for the general functioning scale with racially/ethnically and socio-economically diverse populations (Epstein et al., 1983). The 6-item scale on the EAT-IV survey assessed family communication, acceptance of family members, expressing feelings, getting along, decision making and trust. Possible EAT-IV family functioning scores ranged from 6 to 24, with higher scores indicating greater family functioning (Cronbach's $\alpha = 0.72$, test-retest reliability r = 0.71).

Partner relationship strength was assessed with the emotional intimacy subscale of the Personal Assessment of Intimacy in Relationships (Schaefer and Olson, 1981) among participants who reported that they currently had a significant other. The instrument contains six items assessing intimacy within a relationship, such as listening and sharing feelings with significant other. Responses were selected from a four-point Likert scale. Possible scores ranged from 6 to 24, with higher scores indicating greater relationship strength (Cronbach's $\alpha = 0.88$; test-retest r = 0.80).

2.1.2. Indicators of emotional wellbeing

Depressive mood was assessed with a six item instrument asking how often participants were troubled by symptoms such as feeling hopeless over the past 12 months (Kandel and Davies, 1982) (not at all, somewhat very much). The items were summed to get a depression score that ranged from 6 to 18, with higher scores indicating more depressive symptoms (Crohnbach's $\alpha = 0.85$; test-retest r = 0.77).

Self-esteem was assessed with the Rosenberg Self-esteem Scale (Rosenberg, 1965) which asks about multiple dimensions of self-image and wellbeing. Possible scores ranged from 6 to 24, with higher scores indicating greater self-esteem. The scale was found to have good internal consistency (Crohnbach's $\alpha = 0.85$) and reliability (test-retest r = 0.81) in the EAT sample.

A *stress index* was measured with two items asking, on a scale of one to ten, about overall level of stress and ability to manage stress. An index was then created by dividing the number for perceived stress score by the managing stress score (Nelson et al., 2008). Possible scores ranged from 0.1 to 10, with scores above 1.0 indicating unmanaged greater stress (test-retest r = 0.78).

2.1.3. Indicators of nutritional wellbeing

Body mass index (BMI) was calculated as weight (kg) / height (m) (Harrison et al., 2015), drawing on self-reported height and weight. In a validation study among a sub-sample of 127 Project EAT-III young adult participants, the correlation between measured and self-reported BMI values was r = 0.95 (Quick et al., 2013). In the current sample, the mean BMI for males was 28.2 (68% overweight) and for females 28.0 (62% overweight).

Fast food intake was assessed with the item, “In the past week, how often did you eat something from a fast food restaurant (like McDonald's, Burger King, etc.)?” with six response options ranging from never to > 7 times. Usual past year intake of *fruit*, *vegetables*, and *sugar sweetened beverages* was assessed with a semi-quantitative food frequency questionnaire (Harvard School of Public Health Nutrition Department, n.d.). A daily serving was defined as the equivalent of one-half cup for fruit and vegetables or as the equivalent of one glass, bottle, or can for sugar-sweetened beverages. For analyses, all food consumption variables (including fast food) were treated as continuous items.

Age, *sex*, and *race/ethnicity* were all based on self-report measures with strong reliability (test-retest percent agreement: 74–100%). Socioeconomic indicators included *household income*, *educational attainment* (highest level of education completed by participant or spouse) (Horacek et al., 2002), and *current level of employment* (full-time or part-time/not working). Participants were also asked to report on their *number of children*, *age of their children*, whether *children live in the household*, and if they have a *significant other*. Participants were considered to be living with their children if they reported having one or more children in their home at least 50% of the time.

2.2. Analysis

All analyses were conducted using the SAS software package (v9.4, Cary, NC). Our main analyses were restricted to those who were parents at EAT-IV. Prevalence estimates were derived to describe the socio-demographic characteristics of participants and to describe the bivariate relationship between variables of interest (e.g. the relationship between socio-demographic variables and frequency of family meals). Multiple regression models were conducted to determine the relationship between frequency of family meals and indicators of social, emotional and nutritional wellbeing. All regression analyses controlled for the socio-demographic variables. A separate set of regression models was generated to determine if the relationships between family meals and indicators of social, emotional and nutritional wellbeing were moderated by sex. This was done by including an interaction term (family meal * sex) as a covariate in the regression models. Tests for trend were used to determine statistical significance between the frequency of family meals and indicators of social, emotional and nutritional wellbeing in multivariate models.

3. Results

The socio-demographic characteristics of parents participating in EAT-IV are described in Table 1. The mean age of parents was 31 years. There were slightly more females (62%) than males and slightly more participants identifying as white (68%) than non-white. Approximately 50% of participants reported their household income at $75,000 or greater (43% of mothers, 56% of fathers) and their maximum household educational attainment at university degree or higher (49% of mothers, 63% of fathers). Full-time employment was reported by 64% of mothers and 91% of fathers, while 26% of participants were not employed in full-time work. Parents reported they had, on average, 2.0 children with a mean age of 4.6 years. Nearly 90% of parents (90% of mothers, 87% of fathers) reported living with their children 50% of the time or more and over 90% of parents reported that they had a significant other.

Approximately 50% of parents reported frequent family meals (7 or more times per week), while 12% of parents reported family meals twice a week or less often (Table 2). Frequent family meals were more common among participants who identified as white, with higher levels of education, with household incomes of greater than $75,000, who were living with their children 50% of the time or more often, with younger children, and who had a significant other.

Increasing frequency of family meals was associated with multiple indicators of parental social and emotional wellbeing of parents (Table 3). Specifically, greater frequency of family meals was associated with greater family functioning ($p < 0.001$) and greater relationship strength (among participants with a significant other, $p < 0.001$). Likewise, having more frequent family meals was associated with lower levels of depressive symptoms, lower stress index, and greater self-esteem (all $p < 0.001$). The relationships between frequency of family meals and indicators of social and emotional wellbeing were similar for mothers and fathers (all interactions $p > 0.05$; data not shown). Given that the direction of the relationship between family meals and emotional wellbeing is unknown (e.g. it is possible that poor emotional wellbeing of parents may make it difficult for families to eat together and vice versa), supplemental analyses adjusting for previous emotional well-being were conducted. Additional regression models were generated to include the depressive symptoms and self-esteem as measured five years earlier as covariates in the models where the dependent variables were depressive symptoms and self-esteem. These two indicators were selected because they reflect both positive and negative dimensions of emotional wellbeing and the same measures were assessed in both the EAT-III and EAT-IV surveys. The overall findings were unaffected ($p < 0.001$ for both; data not shown).

The relationships between frequency of family meals and indicators

Table 1
Socio-demographic characteristics of parents participating in Project EAT-IV.

	Total		Mothers		Fathers		p-Value
	n	% or mean	n	% or mean	n	% or mean	
Age							
Mean	889	31.4	552	31.3	337	31.5	0.016
Race/ethnicity							
White	593	67.5%	338	62.2%	255	75.9%	
Non-white	286	32.5%	205	37.8%	81	24.1%	< 0.001
Household income							
Less than $34,999	133	15.2%	102	18.8%	31	9.4%	
$35,000–$74,999	323	37.0%	207	38.1%	116	35.0%	
$75,000 or more	418	47.8%	234	43.1%	184	55.6%	< 0.001
Household educational attainment							
High school graduate or equivalent	132	14.9%	93	16.9%	39	11.6%	
Some university	267	30.1%	188	34.1%	79	23.6%	
Four year university degree	306	34.5%	174	31.6%	132	39.4%	
Graduate or professional degree	181	20.4%	96	17.4%	85	25.4%	< 0.001
Level of employment							
Full-time work	655	73.8%	350	63.5%	305	90.8%	
Not full-time work	232	26.2%	201	36.5%	31	9.2%	< 0.001
Number of children							
Mean	889	2.0	552	2.1	337	1.9	0.003
Age of children							
Mean	828	4.6	518	5.0	310	3.9	< 0.001
Live with children							
50% of the time or more	790	88.9%	497	90.0%	293	86.9%	
Less than 50% of the time	99	11.1%	55	10.0%	44	13.1%	0.16
Relationship status							
Significant other	819	92.1%	498	90.2%	321	95.3%	
No significant other	70	7.9%	54	9.8%	16	4.7%	0.007

Table 2
Frequency of family meals by socio-demographic characteristics of participants.

	Frequency of family meals						p-Value
	0–2 times a week		3–6 times		7 times or more		
	n	%	n	%	n	%	
Total	104	11.7%	315	35.6%	467	52.7%	
Age							
Mean	104	31.4	315	31.3	467	31.4	0.51
Gender							
Male	42	12.5%	119	35.5%	174	51.9%	
Female	62	11.3%	196	35.6%	293	53.2%	0.84
Race/ethnicity							
White	57	9.6%	200	33.8%	335	56.6%	
Non-white	46	16.2%	112	39.4%	126	44.4%	< 0.001
Household income							
Less than $34,999	25	18.9%	54	40.9%	53	40.2%	
$35,000–$74,999	47	14.6%	113	35.1%	162	50.3%	
$75,000 or more	31	7.4%	147	35.2%	240	57.4%	< 0.001
Household educational attainment							
High school graduate or equivalent	30	23.1%	54	41.5%	46	35.4%	
Some university	39	14.6%	102	38.2%	126	47.2%	
Four year university degree	27	8.8%	106	34.6%	173	56.5%	
Graduate or professional degree	8	4.4%	51	28.2%	122	67.4%	< 0.001
Level of employment							
Full-time work	76	11.6%	248	37.9%	330	50.5%	
Not full-time work	28	12.2%	67	29.1%	135	58.7%	0.052
Number of children							
Mean	104	2.2	315	1.9	467	2.0	0.29
Age of children							
Mean	91	5.6	302	5.3	435	3.9	< 0.001
Children living in the household							
50% of the time or more	80	10.1%	281	35.6%	429	54.3%	
Less than 50% of the time	24	25.0%	34	35.4%	38	39.6%	< 0.001
Relationship status							
Significant other	93	11.3%	282	34.5%	442	54.1%	
No significant other	11	15.9%	33	47.8%	25	36.2%	0.017

Table 3
Indicators of social and emotional wellbeing of parents by frequency of family meals.

	Family meals							p-Value[c]
	n	0–2 times a week		3–6 times		7 times or more		
		LS mean[a]	CI[b]	LS mean	CI	LS mean	CI	
Family functioning	807	19.6	18.7, 20.5	20.6	19.9, 21.3	21.6	20.9, 22.3	< 0.001
Relationship strength[d]	745	17.5	15.5, 19.6	18.3	16.5, 20.1	19.5	17.7, 21.4	< 0.001
Depressive symptoms	807	11.6	10.6, 12.6	11.0	10.1, 11.8	10.4	9.5, 11.2	< 0.001
Self-esteem	807	18.8	17.9, 19.8	19.2	18.4, 20.0	20.4	19.6, 21.1	< 0.001
Stress index	790	1.4	1.1, 1.7	1.2	0.9, 1.5	0.9	0.7, 1.2	< 0.001

[a] Least squared mean.
[b] 95% confidence interval for the mean.
[c] Test for trend between frequency of family meals and social and emotional wellbeing variables, controlling for gender, age, household income, household education, race/ethnicity, level of employment, number of children, age of children, children living in the household, and relationship status.
[d] Asked only of participants reporting they had a significant other.

of nutritional wellbeing are shown in Table 4. Parents reporting frequent family meals ate significantly more fruits ($p = 0.045$) and vegetables ($p = 0.048$). There were no significant relationships between frequency of family meals and BMI, fast food consumption or daily servings of sugar sweetened beverages. The relationships between frequency of family meals and indicators of nutritional wellbeing were similar for mothers and fathers (all interactions $p > 0.05$; data not shown), with the exception of servings of fruit ($p = 0.012$). The positive relationship between frequency of family meals and servings of fruit appeared to be stronger for mothers, than fathers. Mothers reporting frequent family meals reported 3.2 servings of fruit per day, compared to 2.5 servings among those having family meals 3–6 times a week, and 2.5 servings among those having infrequent family meals. For fathers, consumption of fruit was 2.2, 2.5 and 2.4 servings, respectively.

4. Discussion

The aim of the current paper was to explore the relationship between family meals and indicators of nutritional, social and emotional wellbeing for parents. We found that parents who reported frequent meals with their families also reported better family functioning, stronger relationships and better mental health, but few relationships with better nutrition. These findings are novel, as to date, the majority of research addressing the potential health effects of family meals has focused on children and adolescents (Fulkerson et al., 2014; Harrison et al., 2015; Skeer and Ballard, 2013).

Table 4
Body mass index (BMI) and eating behaviors of parents by frequency of family meals.

	Family meals							p-Value[c]
	n	0–2 times a week		3–6 times		7 times or more		
		LS mean[a]	CI[b]	LS mean	CI	LS mean	CI	
BMI	752	28.9	26.7, 31.2	28.4	26.4, 30.3	27.9	26.1, 29.7	0.16
Fast food, frequency per week	807	1.9	1.7, 2.1	1.8	1.7, 2.0	1.8	1.6, 1.9	0.09
Daily servings of vegetables	701	3.9	2.7, 5.1	4.3	3.2, 5.4	4.5	3.3, 5.6	0.045
Daily servings of fruit	701	2.4	1.6, 3.1	2.4	1.8, 3.0	2.8	2.1, 3.4	0.048
Daily servings of sugar sweetened beverages	700	0.7	0.3, 1.1	0.8	0.4, 1.1	0.6	0.2, 0.9	0.21

[a] Least squared mean.
[b] 95% confidence interval for the mean.
[c] Test for trend between frequency of family meals and nutrition indicators, controlling for gender, age, household income, household education, race/ethnicity, level of employment, number of children, age of children, children living in the household, and relationship status.

Findings from the current study suggest that frequent family meals are associated with better social and emotional health for parents. Previous research has documented these relationships for adolescents (Skeer and Ballard, 2013; Fulkerson et al., 2009; Utter et al., 2016), but we are aware of only one other population-based study (Berge et al., 2018) (from our research team) to report these relationships for parents. Berge et al. (2018) found that parents who had maintained regular family meals from adolescence or who had started regular family meals with their own children had better self-esteem and fewer depressive symptoms than parents who did not have family meals. Meal times present families with the opportunity for communication and engagement, on a regular basis. Adolescents who report frequent family meals also report greater family connection, parental monitoring and that they feel they can talk to their parents about their concerns (Utter et al., 2013b). Thus it follows that parents may also benefit from greater communication and engagement with their children and other family members and that mealtimes may create an opportunity for this to happen. Frequent family meals may also serve as a family routine and ritual. A long-standing body of evidence suggests that family routines and rituals are associated with better health and wellbeing for all family members, as well as feelings of parenting competence and marital satisfaction (Fiese et al., 2002). As the current study is cross-sectional, the direction of the relationships between family meals and psychosocial indicators remain unknown. It is possible that infrequent family meals are the result of greater stress on parents as parents with busy working schedules may trade-off family meals as a coping strategy (Devine et al., 2006). It is also possible that family meals are a characteristic or function of family wellbeing, rather than the cause of it. However, in the supplemental analyses we accounted for background levels of emotional health and our results were unchanged. In addition, findings from a feasibility study of a family meal intervention found that parents reported improvements to family relationships as a result of participating in the intervention (Utter and Denny, 2016).

In general, the current study found few relationships between frequent family meals and better nutrition for parents. Though the current study did find a relationship between family meals and greater fruit and vegetable consumption among parents, there were no relationships observed for BMI or consumption of fast food or sugar sweetened beverages. It was of interest that frequency of fast food consumption was similar across the frequency categories of family meals. This may be due to families having fast food for family meals or may reflect that fast food was consumed at times when young adult parents do not typically eat with their families (e.g. lunch). Our findings with regard to fruit and vegetable consumption are consistent with a few other studies in this area (Berge et al., 2012a; Larson et al., 2013). At least one study has reported a relationship between frequent family meals and lower BMI among parents (Sobal and Hanson, 2011), though it is notable that the mean age of parents in that study was 50 years. The lack of associations with BMI specifically, may reflect that the parents in the current study were younger the previous study and that the types of foods served at family meals may change as parents (and their children) get older.

Strengths of the current study lie in its large, diverse population-based sample, inclusion of established scales and measures, wide range of health indicators and timeliness of the data. Though, the current study has a few limitations worth considering when interpreting the findings. First, the sample is derived from a longitudinal study. Attrition from the original sample, and non-response for the current survey, may have affected the results. Since we have no way of knowing which participants lost to follow-up became parents we were unable to construct appropriate inverse probability weights to account for the potential retention bias. In addition, participants in the current study had higher household incomes and achieved higher levels of education than the general population of adults in Minnesota (Minnesota State Demographic Center, n.d.). For example, in the current study 55% of participants completed a university degree, compared to 34% of adults in Minnesota. Therefore, findings from this study may not be generalizable to other more diverse populations. Second, the measure of family meals is only a measure of frequency. Other aspects of the family meal may be important to measure in future studies (such as nutritional quality of the meal and type and quality of communication) to better understand these relationships. Previous research has suggested that psychosocial factors of adults (work-life stress, depressive symptoms) is inversely associated with the healthiness of meals served at family dinners.(Neumark-Sztainer et al., 2014) Future research may explore the mediating roles of healthiness of meals, positive atmosphere of family meals, and communication during meals in the relationship between frequency of family meals and nutritional and emotional wellbeing. Future research may also explore the how family meals influences the health and wellbeing of parents over time.

5. Conclusions

Findings from the current study suggest that parents who have frequent family meals are better off in terms of social and emotional wellbeing. These findings are significant as it is well known that parent mental wellbeing affects the health and wellbeing of their children. Future interventions to promote family meals should consider measuring a wide range of potential impacts on the health and wellbeing of the whole family. Given the direction of the relationship with emotional wellbeing remains unknown, future interventions to increase family meals may consider that the emotional health of parents may make it more difficult for families to prepare meals and eat together. Conversely, if family meals do improve wellbeing, then the current research offers health professionals and interventionists and tangible and feasible mechanism for working with families.

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Conflicts of interest

All authors declare that they have no conflicts of interest to disclose.

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