Reviewer's report

Title: Dairy products and calcium intake during pregnancy and dental caries in children

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Reviewer: Carlos Camargo

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Tanaka and colleagues analyzed data from 315 mother-child pairs in the Osaka Maternal and Child Health Study (n=1002 women). The objective of this secondary analysis was to investigate the association between maternal intake of dairy products and calcium during pregnancy and the risk of childhood caries by age ~4 years. The authors report that higher maternal intake of cheese during pregnancy was associated with lower risk of childhood caries, while maternal milk intake was not.

MAJOR COMPULSORY REVISIONS

1. Although the prospective design is good, the data are problematic in that only 494 mother-child pairs completed surveys to age ~4 years, of whom only 315 were included in this analysis (ie, 31% of original sample). The authors should present actual data to support the comments in Discussion about differences between the larger starting samples (n=1002) and the sample used in the present analysis. Typically this is done at the start of the Results section and, given the number of factors, it would help to create a new Table for this purpose.

2. Supplement use was uncommon (6% used calcium supplements at least once per week). For unclear reasons, the authors omitted data on this supplemental calcium intake from their analysis. While a focus on dietary intake is fine, it would be helpful for the authors to report association between total calcium intake (with supplement included) and childhood caries.

3. It would be helpful for readers to understand the contribution of each individual food to the total calcium intake of mothers.

4. Moreover, what was the correlation between each of the major calcium-containing foods and calcium intake? (to help address co-linearity)

5. To address linear trends, the authors assigned median value for the population to each category and used these values as a continuous variable. Why not just use the actual value for this test of linear trend? What did that approach show?

6. The authors state that after adjustment for calcium the association between total dairy products and yoghurt and childhood caries "disappeared" (Results and Discussion) -- but the point estimates actually are quite similar: 0.50 vs 0.57 and 0.50 vs 0.58, respectively. While the P-value no longer is <0.05, I would not conclude from these findings that the association had "disappeared"; it's more
likely a question of co-linearity and statistical power.

MINOR ESSENTIAL REVISIONS
None

DISCRETIONARY REVISIONS
Why would cheese be protective and not milk? The authors provide an interesting discussion that highlights the possibility of a spurious association (e.g., that maternal intake correlates with childhood intake and it’s the latter that matters). Is there evidence that this explanation is unique to cheese? Wouldn’t maternal milk intake and childhood milk intake also be correlated? It would be helpful if the authors could elaborate on this interesting explanation.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.