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OPEN PEER REVIEW

Determination of Lead Level in Pasteurized Milk and Dairy Products Consumed In Tehran and Evaluation of Associated Health Risk

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1 Original submission

2 comments · 4 May 2021 – 8 May 2021

Referee 1 Reviewer

MINOR REVISION 4 May 2021

The aim of this well-designed and well-conducted study was to determine the level of lead in pasteurized milk and different dairy products from four widely consumed brands in Tehran. In this regard, these points should be considered.

1. Please add the definitions of the age ranges for children and adults in the methods section.
2. Under the "statistical analysis" subtitle, the significance level for the p-value is given as P<0.05, but no p-value calculations are presented in the tables and figures; however, I think that p-values have been calculated for figures 2 and 3. If so, please add their numerical values to both figures, as well as an explanation of the statistical methods used to obtain them.
3. Please kindly add a reference for figure 1.
4. Please kindly add the statistical methods used to obtain the results at the bottom of Table 2 and table 3.
5. Please mention the strengths and limitations of the study at the end of the discussion section.

Referee 2 Reviewer

MAJOR REVISION 8 May 2021

Thank you for the opportunity to review this article entitled “Determination of lead concentration in pasteurized milk and dairy products consumed in Tehran and evaluation of associated health risk ”. I offer a few suggestions as noted below:
- The introduction paragraph appears way too superficial in its description of the rationale and lacks important pieces of information and data, which would support and emphasize the importance of the current study.

- Authors should provide a more detailed scientific background to support the aim of their study by reporting and describing substantial background findings in order to better introduce and appropriately contextualize the topic and the study in general.

- Please explain how your hypothesis is relevant and discuss the biological plausibility or mechanism of effect in detail and in an understandable manner.

- English editing is advised since many areas are grammatically incorrect.
- This reviewer strongly suggests globally editing the grammar and punctuation throughout the manuscript and presenting the results and discussion in a more organized way.
- The association between heavy metal and cancer has not been well studied.

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Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear Editor in Chief

Regarding your email to revise the manuscript, responses to each reviewers comment are provided as well as the changes made to the manuscript that are highlighted within the text. I hope the manuscript is acceptable in the present form.

Reviewer 1:

The subject is interesting as lead may inhibit DNA repair and acts synergistically with other mutagens. However, some major corrections are required before further considerations: In this paper, the amount of lead in dairy products has been measured and its health consequences have not been studied. It is better to correct the title and object of the paper.

Thanks for your suggestion. However, some health consequences such as average daily intake of metal (DIM), carcinogenic risk (CR) and hazard quotient (HQ) have been calculated which are associated with health effects of lead presence in milk and dairy products and are usually reported in the case of health risk assessment.

- Conclusion of the article is not extracted from the results obtained and should be corrected in the abstract and main text of the paper.

We mentioned the obtained results in “conclusion” including the level of Pb in different products as well as the DIM, HQ and CR and corrected this section in abstract. However, we would appreciate if you could explain in more details what we are expected to add.

- Given that the scope of the journal is in the field of cancer, the introduction should provide more information about the role of heavy metals, especially lead, in cancer.

Some information about the relation of lead and cancer has been added to “introduction” that is highlighted within the text.

- The discussion section needs a general revision. Discuss more about the amount of lead in different dairy products and the safe amount of lead to prevent cancer in children and adults.

Some studies have been added within the text.

Reviewer 2:

Thank you for the opportunity to review this article entitled “Determination of lead concentration in pasteurized milk and dairy products consumed in Tehran and evaluation of associated health risk” I offer a few suggestions as noted below:

- The introduction paragraph appears way too superficial in the description of the rationale, and lacks important pieces of information and data, which would support and emphasize the importance of the current study.

We tried to add some information regarding the carcinogenicity of heavy metals, particularly lead (Pb) to emphasize the importance of this study and determination of heavy metals and associated health risks in dairy products.

-Authors should provide a more detailed scientific background to support the aim of their study, by reporting and describing substantial background findings, in order to better introduce and appropriately contextualize the topic, and the study, in general.

These items have been presented in different parts of the manuscript including “introduction” and “discussion”.

- Please explain how your hypothesis is relevant, discuss the biological plausibility or mechanism of effect in details and understandable.

The study hypothesis was the presence of lead in some dairy products that may pose a risk for consumers’ health. According to the obtained results, the level of Pb was below the maximum allowable limit and no risk associated with the consumption of these products were observed. The toxicity and biological effects of Pb has been presented in “introduction” and the probable reasons of contamination of dairy products with Pb has been mentioned.

- English editing is advised since many areas are grammatically incorrect.

English writing has been checked again by an expert.

- This reviewer strongly suggests a global editing of the grammatically and punctuation throughout the manuscript, and to present results and discussion in a more organized way.

Thanks for your suggestion. We tried to present the obtained data more organized and complete.

- The association between heavy metal and cancer has not been well studied.

We would appreciate if you could explain in more details and what we are expected to do. Based on the literature and existing studies, in health risk assessment, the daily intake of metal (DIM), hazard quotient (HQ) and carcinogenic risk are calculated.

Reviewer 3:

The aim of this well designed and conducted study was to determine the level of lead in pasteurized milk and different dairy products in four high consumed brands in Tehran. In this regard, these points should be considered

1. Please add the age range definition for children and adults in methods section.

As mentioned in the equation 2, 52 years for adults and 18 years for children (equivalent to an average lifetime when consuming milk) were considered in calculations.

2. In "statistical analysis" subtitle, the significance level of P-value has been considered as $P<0.05$ but there is no p-value calculation in tables and figures; however, I think that in figure 2 and 3, it has been calculated. If so, please add its numerical values to the both figures as well as explanation about the statistical methods used for obtaining them.

It is obvious that determination of significant difference is not possible without calculation of P-value which has been performed by SPSS software. Generally, p-values are not presented in figures and tables and instead difference between treatments is shown by letters such as figures 2 and 3.
Moreover, in “statistical analysis”, it has been mentioned that Duncan’s test was used to analyze the significant differences among the means (means of the Pb level).

3. Please kindly add reference for figure 1.

This figure has been designed by authors.

4. Please kindly add statistical methods used for obtaining the results at the bottom of the Table 2 and table 3.

The results in Tables 2 and 3 are obtained based on the formula presented in “health risk assessment” and there was no need of specific statistical method.

5. Please mention the strengths and limitations of the study at the end of the discussion section.

They have been added to the discussion.

2 Revision 1

2 comments · 25 May 2021 – 27 May 2021

Hoda Zahedi Reviewer

ACCEPT 25 May 2021

All of the comments have been considered by the authors, and the manuscript can now be accepted in this form.

Referee 2 Reviewer

ACCEPT 27 May 2021

Dear editor
Thank you for the opportunity to review this article entitled “Determination of lead concentration in pasteurized milk and dairy products consumed in Tehran and evaluation of associated health risk”. Overall, this was an interesting manuscript. I think it would be accepted.

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Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear Editor in Chief

Regarding your email to revise the manuscript, responses to your comments are provided as well as the changes made to the manuscript that are highlighted within the text. I hope the manuscript is acceptable in the present form.

How is the sample size determined? How many samples have been taken from each product?

Thanks for your suggestion. We tried to present them more organized.

What test was used before Duncan?

It was added.

How are human samples assigned to dairy samples?

As mentioned in the equation 1 and 2, food ingestion rate (g/day), average lifetime when consuming milk, and average body weight of adults and children were considered in calculations.

3 Revision 2

0 comments

No public comments in this round.