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Hepatitis A Chronic Immunity in Iran: A Geographic Information System-Based Study

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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1 Original submission

2 comments · 18 Jul 2023 – 19 Jul 2023

Referee 1 Reviewer

MAJOR REVISION 18 Jul 2023

Comments to the Author
- Here are some suggestions that have been made to improve the manuscript:

1. The English writing needs to be improved and checked.
2. Abstract: Methods: The variables that were evaluated are not mentioned.
3. Abstract: Results: The prevalence of HAV immunity in the semi-humid climate is not mentioned. Also, results for other variables are not mentioned. It seems that the study only aimed to evaluate weather effects on HAV immunity.
4. Methods: Data collection: "A total sample size of 5564" of what: cities, participants, or …?
5. Methods: Data collection: Check "A total of 5,673 people participated in the study".
6. Methods: Data collection: The inclusion and exclusion criteria are not mentioned.
7. Methods: Data collection: "Data was collected from all age groups". Which data do you mean? Name the variables of the study and explain.
8. Methods: Data collection: Briefly explain blood sampling and the method used for the lab test.
9. Table 1. The table is not shown completely; make it smaller or use landscape orientation. Also, what does the first row of the table, "frequency (mean+SD)", show? In the title, however, you mentioned "(numbers in the parenthesis is in percent)". Is it the frequency of seropositive participants?
10. Table 1. Results for education are not shown, although education is discussed in the discussion.
11. Discussion: It is mentioned that " According to a review study, the range of seroprevalence of HAV IgG reported in different parts of Iran has been 8 to 99%". Please report your results as percentages too.

Associate Editor

MAJOR REVISION 19 Jul 2023

Dear EIC,
The manuscript has fundamental errors. We can decide on acceptance or rejection of this manuscript after a major revision and corrections to all parts mentioned by the reviewers.

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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.

Reply to reviewer

Reviewer 1:

The manuscript presents data on Hepatitis A immunity in different climates in Iran. The authors have presented interesting data regarding hepatitis A immunity in different climates in Iran, however, there are major concerns.

- *Thanks for your valuable comments. These comments have been answered in detail below, and an effort was made to apply your points of view in the manuscript.*

- *The authors have declared that there is not a significant association between different climatic regions and hepatitis A immunity, as the main purpose of the study and actually, I did not find a clear reason in the "Introduction" section for the study aim.*
  - *Thank you for your notice, the possible reasons for the relationship of climate and immunity to hepatitis A, which made us investigate it, were added to the introduction.*

- *The "Method section is incomplete, and the authors should provide enough data about the study design. There are several important questions about the study design. For which criteria the 12 provinces have been selected?*
  - *As mentioned in the method section, the data of this article was taken from a preliminary study by our team with the aim of determining Hepatitis A endemicity in the entire country of Iran.(1) And the selection of 12 Iranian provinces for sampling was based on the sampling criteria of that study. Actually, samples were collected from 43 cities of the country which were selected based on seven socio-demographic strata. These seven groups stratification of cities was done using K-means clustering technique according to socio-economic determinants. Finally, these cities belonged to 12 provinces.*
  - *These explanations were also added to the "Methods" section of manuscript.*

- *Which cities have been considered big cities, and by which criteria are these cities considered big cities?*
  - *The capitals of the country's provinces, was considered big cities, which usually have the largest area and population in each province.*

- *It should be determined that each province is located in which climate.*
  - *Considering the climatic diversity inside the most provinces of Iran, it is not possible to categorize each province in one climate and with the aim of increasing the accuracy of the analysis, the climate of each region was determined at the district level.*

- *Iran has 31 provinces, and how the information on 12 provinces can be generalized to all provinces? It is clear that each province has its specific socio-economic status, and often there are significant differences between different provinces.*
    - *Due to the logistic shortage, we were not able to gather data from all provinces of Iran. We selected the provinces and townships according to some criteria based on socio-economic status and by using multistage cluster randomized sampling method, which can be representative to all regions.*
    - *And about the mapping section, this is exactly one of the novelties of this study. In this study, an attempt has been made to generalize the existing information to the areas where data is not available, with the minimum possible error and taking into account other factors related to hepatitis A immunity, by using GIS interpolation modeling techniques that are mentioned in the manuscript.*

- *The result section is very short, and it needs to be completed. The frequency of hepatitis A immunity in different climates has not been mentioned in the Result section.*
    - *It added to the result section, and also has been mentioned in table 1.*

- *In the "Abstract" section it has been declared that the Prevalence of HAV immunity in medium Semi-dry (aPR = 1.37, 95% CI = 1.14-1.63, P<0.001), was more than in semi-humid climate. However, in Table 1 the Prevalence of HAV immunity in medium Semi-dry is lower than in semi-humid climate.*
    - *Table 1 demonstrates the results of the univariate analysis and frequency of the Anti-HAV IgG seropositivity in different climates. But according to multivariable analysis, the status of immunity to hepatitis A changed in different climates; Including in medium Semi-dry compared to semi-humid climate.*

- *Table 1 has some errors in the submission file.*
    - *It was corrected.*

- *Also, Figure 1 needs more description in the Result section.*
    - *More explanations related to the map were added to this section.*

- *The "discussion" section is too long and contains irrelevant discussions and needs to be rewritten. Education, big cities, or the location of the cities are not the variables of the study. Also, there are unnecessary descriptions of the importance of the maps.*
- *There is not enough discussion about the main study finding.*
    - We tried to apply your point of view as much as possible in the discussion. The findings related to the variables of current study were further interpreted. And the unnecessary additional content was removed.

- *Finally, there is no clear conclusion regarding the study findings.*
    - *The conclusion section was edited.*

Reviewer 2:

Comments to the Author
- here are some suggestions that have been made to improve the manuscript:

1. English writing needs to be improved and checked.

- *Thank you for your helpful comments; English editing was conducted based on the journal style as much as possible.*

2. Abstract: Methods: variables that were evaluated are not mentioned.

- *Variables list was added.*

3. Abstract: Results: prevalence of HAV immunity for semi-humid climate are not mentioned. Also, results of other variables are not mentioned. It seems that the study only aimed to evaluate weather effects on HAV immunity.

- *The reported values associated with each climate are PR and CI from the multivariate model, in which the semi-humid climate is considered baseline.*
- *Result of other variables added.*

4. Methods: Data collection: "A total sample size of 5564" of what, cities or participants or …?

- *"A total sample size of 5564 participants …" was replaced.*

5. Methods: Data collection: check "A total of 5,673 people participated in the study".

- *A total sample size of 5655 participant, was calculated. The information of a total of 5,673 people gathered in the study, while 254 people were excluded due to mentioned reasons. Finally, blood samples of 5419 participants could be tested.*

6. Methods: Data collection: inclusion and exclusion criteria are not mentioned.

- *The inclusion criteria were all individuals over one year of age, and the exclusion criteria were samples that did were not appropriate for analysis or the participants which information was incomplete for any reason.*
- *This explanation has added to the methods of manuscript.*

7. Methods: Data collection: "Data was collected from all age groups", which data you mean? Name variables of the study and explain.

- *The details were added in the method section.*

8. Methods: Data collection: briefly explain about blood sampling and method that was used for lab test.

- *As you know, this current article is a supplementary study, during which we did not perform blood sampling. The laboratory data was taken in the primary study.(1) this point been mentioned in the manuscript.*

9. Table 1. Table is not shown completely, make it smaller or use landscape orientation. Also, first row of table "frequency (mean+SD)" shows what? While you in the title

mentioned "(numbers in the parenthesis is in percent)". is it the frequency of seropositive participants?

- *Table orientation was corrected.*
- *Mean+SD is related to age, which is the only quantitative continuous variable of the study. This change was applied to the table.*

10. Table 1. Results of education are not shown while in discussion it is explained about education.

- *Corrected.*

11. Dissuasion: it is mentioned " According to a review study, the range of seroprevalence of HAV IgG reported in different parts of Iran has been 8 to 99%", please you report your obtained results in percentage too.

- *In the article of primary study(1), the overall endemicity of HAV was reported as 63%, and in current study according to the interpolation methods, the endemicity prevalence in different areas was illustrated in the map (figure1).*

1. Lankarani KB, Honarvar B, Vardanjani HM, Kharmandar A, Gouya MM, Zahraei SM, et al. Immunity to Hepatitis-A virus: A nationwide population-based seroprevalence study from Iran. Vaccine. 2020;38(45):7100-7.

2 Revision 1

3 comments · 19 Aug 2023 – 25 Sep 2023

Sina Mohagheghi Reviewer

MINOR REVISION 19 Aug 2023

The manuscript entitled “Hepatitis A Chronic Immunity in Iran: A Geographic Information System-Based Study” has been considerably improved after the authors' revision. However, there are still some concerns. In the abstract section, methods should be explained briefly, and the results section should be given more attention. Also, some details, including the names of all the cities where the sampling was done, the names of big cities, the number of samples collected from each city, and the climate of each city, should be clearly stated in the manuscript. The manuscript is confusing because the authors stated the names of provinces, collected study samples from some cities in these provinces, and discussed the climates of these cities and their locations. Criteria for selecting big cities should be added to the manuscript.
In line 122, it is mentioned that the study samples were collected from 42 cities; however, in line 76, the number is 43 cities. Which one is correct?
Please clearly define the meaning of the numbers in table 1 (mean or SD or SEM or percent) for all variables.

Fatemeh Faraji Reviewer

ACCEPT 24 Sep 2023

The format of the current version of the manuscript is acceptable.

Associate Editor

MINOR REVISION 25 Sep 2023

Dear EIC,
I reviewed the manuscript again. The great effort in improving the manuscript is highly appreciated. But some points are still unresolved. The authors should revise it based on the reviewers' comments.
Thank you

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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.

Reply to reviewer

Reviewer 1:The current version format of the manuscript is acceptable

- *Thank you for your valuable comments to improve the quality of the article that led to the current version.*

Reviewer 2:The manuscript entitled "Hepatitis A Chronic Immunity in Iran: A Geographic Information System-Based Study" has been considerably improved after the authors' revision. However, there are still some concerns.

- *Thanks for your helpful comments in the progression of this article. These comments have been answered in detail below, and an effort was made to apply your points of view in the manuscript.*

In the abstract section, methods should be explained briefly and the results section should be given more attention.

- *Considering the multi-stage method of conducting this study, as you mentioned, the abstract method section seems a bit detailed. Therefore, we tried to remove unnecessary parts as much as possible.*

Also, some issues including names of all the cities where the sampling was done, names of big cities the number of samples collected from each city and the climate of each city, should be clearly stated in the manuscript. Because the authors stated the name of provinces, they collected study samples from some cities of these provinces and discussed the climates of these cities and their locations, so the manuscript is confusing.

- *To express what you asked to be mentioned in the article, we decided to add another table containing these details to the manuscript. (Table1)*

Criteria for selecting big cities should be added to the manuscript.

- *By big cities, we mean the capital cities of the Iran's provinces. The manuscript has been corrected to remove ambiguity.*

In line 122 it has been mentioned that the study samples are collected from 42 cities, however, in line 76 the number is 43 cities. Which one is correct?

- *Thanks for your reminder. The correct number of cities is 42, which was corrected in the manuscript.*

Please clearly define the meaning of numbers in table 1 (mean or SD or SEM or percent) for all variables.

- *As mentioned in the caption, numbers in parentheses are in percentages. But for more clarity, we also mentioned next to each variable.*

3 Revision 2

1 comment · 20 Oct 2023

Associate Editor

ACCEPT 20 Oct 2023

Dear EIC,
I read the manuscript, and the authors corrected the requested items. The article could be accepted at this stage.
Sincerely;