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OPEN PEER REVIEW

Prevalence of Refractive Errors and Associated Factors in the Population of the Eye Cohort Study in Southeast Iran

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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

4 comments · 19 Jul 2023 – 11 Aug 2023

Referee 1 Reviewer

MINOR REVISION 19 Jul 2023

The paper is well prepared and presented.
The purpose of the paper is to determine the age- and gender-adjusted prevalence of refractive errors and associated factors in the adult population of southeastern Iran. This cross-sectional study can be applied to the prevention and treatment of refractive errors, planning for refractive surgery at appropriate ages, and other therapeutic and/or preventive policies in the Iranian population.

Referee 2 Reviewer

MAJOR REVISION 9 Aug 2023

Dear editor in chief;
The manuscript entitled "Prevalence of refractive errors and associated factors in the adult population of southeastern Iran" has been reviewed, and the comments are as follows:

1. At the end of the title, it is suggested to add the words “Zahedan cohort study or ZAC”.
2. In the abstract, it has been mentioned that the primary goal of the study was …, so what is the secondary objective of the study?
3. In the introduction, explain the scientific background and rationale for the investigation being reported and state specific objectives, including any prespecified hypotheses.
4. What are the associated factors? In the introduction, discuss them, and in the discussion, compare them with those in other similar studies.
5. For the study setting, such as participants’ entry into the study and …, use the Percian cohort study’s protocol or the published article entitled Zahedan cohort Profile. Give the eligibility criteria and the sources and methods of selection of participants.
6. Briefly explain how you calculated age- and gender-adjusted prevalence in the methodology section.
7. Cross-sectional studies are descriptive and analytical, and therefore there is no need to write descriptive and analytical for cross-sectional studies in parentheses.
8. In the abstract, there is no need to write the definitions of myopia, hyperopia, and astigmatism.
9. In the manuscript, the numbering of the references should start from one (using the EndNote software), and in Materials and Methods, the text has no reference numbers.
10. At the end of the Materials and Methods section, the analytical tests and software, including the version, should be added.
11. The numbers for mean SE values for the right and left eyes have been shifted together (numbers before and after ±).
12. The term “prevalence rate” is technically incorrect, so just the word “prevalence” is correct.
13. In tables one and two, some numbers were percentages rather than the prevalence of the disease. It is suggested to check the prevalence again and reanalyze.
14. Table 3 has some spelling mistakes. Some explanations in the table were not correct; for example, for illiterate participants, the number 1.62 was for hyperopia, but in the text, it is mentioned for low myopia. By using the regression test, a better interpretation can be provided. For example, when the age group changes from one category to another, the odds ratio or … increases or decreases by … percent.
15. Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.

16. Most references were old, and it is suggested to use more reliable and newer sources in writing the manuscript.

Associate Editor

MAJOR REVISION 9 Aug 2023

Dear Editor,
In the first review round, the manuscript entitled "Prevalence of refractive errors and associated factors in the adult population of southeastern Iran" needs Major revision.
Sincerely,

Editor-in-Chief

MAJOR REVISION 11 Aug 2023

Dear Author
Thanks for submitting your valuable manuscript to the journal. As a result of this, we would like to inform you that the review of your manuscript is finished, and based on the editorial decision, you need to make a "Major Revision" to your manuscript. Even though this manuscript is of sufficient quality to enter the review process, it needs some significant (major) revisions in some respects.
Best Regards

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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 Reviewers,

Thank you for your thoughtful comments and feedback. Our responses to each comment are below.

Reviewers' comments:

Reviewer 1:

The paper is well prepared and presented.

The purpose of paper is to determine the age and gender- adjusted prevalence of refractive errors and factors associated thereof in the adult population of santheastern Iran. This cross-sectional study can be applied for prevention and treatment of refractive errors, planning for refractive surgery in appropriate ages and other Therapeutic and/or preventive policies in Iranian population.

Thank you for your feedback.

Reviewer 2:

1- The English text of the article needs a fundamental revision.

Corrected and check with native English speaker.

2- In the abstract, multivariate regression used instead multiple regression. Multiple regression is correct.

Revised

3- In table 1, it should be determined what number is written before the confidence interval?

Corrected

4- Significant variables should be identified in Table 1.

Revised

5- What analysis is used in table 1?

Chi-Square

6- Logistic regression is used in the text of the article, but it is not mentioned correctly in the abstract.

Revised

7- In the materials and methods section, the statistical analysis used is not mentioned. Also the software used.

Added in the text.

Reviewer 3:

1. In the introduction, let's keep paragraph 2 brief, as the readers are likely familiar with ophthalmology and optometry, and extensive details on ocular refractive error might be uninteresting to them.

Summarized as much as possible

2. In the introduction, it is essential to identify and specify the ethnic group under study. Given the ethnic diversity in Iran, the focus should be on the Iranian (Persian) and Balochi ethnic groups. These particular groups should be mentioned to ensure clarity for foreign readers who may not be familiar with Southeastern Iran's specific demographics.

Modified in the introduction

3. Please make the necessary corrections to the oblique astigmatism definition. The axis ranging from 150 to 180 degrees should be classified as with-the-rule astigmatism, while oblique astigmatism should be defined as having an axis between 30 to 60 degrees or 120 to 150 degrees.

Revised

4. Please ensure a distinct and explicit definition of both your inclusion and exclusion criteria. Specify the conditions that will lead to exclusion, including ocular and systemic conditions, as well as previous surgeries. Additionally, address the potential for selection bias, given the use of a referral tertiary hospital where patients with disorders tend to seek treatment. Moreover, explain the measures taken to control the impact of cataract on the study, as it can significantly influence refraction in individuals over the age of 50.

In the first phase, several meetings were held with medical experts and public service agencies to identify Zahedan areas based on socioeconomic class. In the second stage, he randomly selected three districts from regions of low, medium and high socioeconomic status. All eligible residents of these designated areas were then invited to participate in the study. Inclusion criteria included Iranian nationality, age between 35 and 70 years at baseline survey, residency in Zahedan for at least 9 months, or at least 1 year for immigrants from other regions, and completion of the baseline survey and to conduct follow-up surveys regarding availability

Individuals who did not meet study requirements or had severe physical or mental illness and were unable to complete the questionnaire or refer to the cohort center were excluded from the study(18). Additionally, participants with previous eye surgery or active eye disease were also excluded from the study (7.1%), and 9296 subjects were ultimately screened.

5.It seems that you find the method section too extensive, including various laboratory and ophthalmic assessments. However, for your study, the essential components should focus on optometrist-performed auto refraction, subjective refraction, visual acuity assessment, and ophthalmic evaluation for manifest orbital and eyelid lesions, strabismus, intraocular pressure (IOP), and cataract. These particular assessments are crucial since they can impact refraction and are sufficient for achieving your study objectives. Please eliminate any other unnecessary assessments from the method, even if they were conducted for the general registration of the cohort.

Revised

Reviewer 4:

1. The exclusion of data from Brazilian or German studies allows the readers to concentrate solely on Iranian data. With this focus, your study gains particular importance in highlighting the

scarcity of information concerning south-eastern Iran. By addressing this research gap, your

study's value is emphasized, as it brings attention to the lack of data in this specific region.

The examples of Brazil and Germany were brought and summarized as similar landmark works in different parts of the world

2. The definition of emmetropia in the method section needs to be revised. The range should be

adjusted from -5.0 to +5.0 to -0.5 to +0.5. Additionally, the term "emmetropia" is often used to

describe the ideal or optimal refractive state of the eye, where no refractive error is present.

Please make the following changes throughout the manuscript: Replace the term "emmetropia"

with "insignificant refractive error".

Revised

The spherical equivalent was defined as cylinder/2 + sphere. SE between -0.50 and +0.50 dioptres was considered emmetropia, while absolute SE values over 0.5 diopters and absolute SE values over 5.00 diopters were considered myopia and high myopia, respectively. absolute SE values greater than +0.5 diopters and absolute SE values greater than +3.00 diopters were defined as hyperopia and severe hyperopia, respectively

3. Kindly, make the essential adjustments to the definition of oblique astigmatism. Categorize the axis from 150 to 180 degrees as with-the-rule astigmatism, while defining oblique astigmatism as having an axis ranging between 30 to 60 degrees or 120 to 150 degrees.

To classify the axis of astigmatism in this study, a 30-degree binning was used, defining ranges of 150-30 degrees as having with the rule, 60-120 degrees against the rule, and 30-60 or 120-150 degrees as oblique astigmatism

4. Descriptions such as "value less than -0.5 and -5.0" might not be familiar to readers. Instead, it is clearer to state that “Myopia was defined as absolute SE values greater than 0.5, and high myopia as absolute SE values greater than 5.0. Hyperopia and high hyperopia were also classified based on their absolute spherical equivalent (SE) values, with hyperopia defined as values greater than 0.5 and high hyperopia as values exceeding 3.0. As for astigmatism, it was categorized by absolute cylinder power values, where values larger than 0.5 indicated astigmatism, and values surpassing 2.25 were considered high astigmatism.” Kindly provide the references for the mentioned definitions mentioned above.

The spherical equivalent was defined as cylinder/2 + sphere. SE between -0.50 and +0.50 diopters was considered emmetropia, while absolute SE values over 0.5 diopters and absolute SE values over 5.00 diopters were considered myopia and high myopia, respectively. absolute SE values greater than +0.5 diopters and absolute SE values greater than +3.00 diopters were defined as hyperopia and severe hyperopia, respectively

5. The inclusion and exclusion criteria are not clearly stated. Kindly ensure to mention them in either the first or second paragraph of your method section for clarity and transparency.

Revised

6. As this is a cross-sectional study, it is recommended to provide clear explanations of the methods used for sample size determination, including the presumed prevalence and reference studies employed in the formula to calculate the sample size.

Revised

7. Please eliminate any unnecessary assessments mentioned in the method section. There is no need to include hematologic, laboratory, RAPD, or other unrelated details when the focus is on self-reported systemic conditions and comprehensive ophthalmic and optometric evaluations.

Revised

Reviewer 5:

1. At the end of the title, it is suggested to add the words “Zahedan cohort study or ZAC”.

Revised

2. In the abstract, it has been mentioned that the primary goal of the study was …, so what is the secondary objective of the study?

Revised

3. In introduction part; explain the scientific background and rationale for the investigation being reported and state specific objectives, including any pre specified hypotheses.

In the introduction, it is explained that no previous study in this field has been found in this area, and the southeast of Iran has been considered as the study area.4. What are associated factors? In introduction part should talk about them and in discussion should compare with another similar studies.

In the introduction section, age, sex, level of education and systemic diseases are given as effective factors

5. For study setting such as participants’ entrance to the study and …, Use Persian cohort study’s protocol or an article published entitled Zahedan cohort Profile. Give the eligibility criteria, and the sources and methods of selection of participants.

Revised

6. Briefly explain how did you calculate age and gender adjusted prevalence in the methodology section.

Revised

7. Cross-sectional studies are descriptive and analytical, and therefore there is no need to write descriptive and analytical for cross-sectional studies in parentheses.

Revised

8. In the abstract, there is no need to write the definitions of myopia, hyperopia, and astigmatism.

Revised

9. In the manuscript, the numbering of the references should start from one (By using the EndNote software) and in Materials and Methods, the texts are with no reference numbers.

Revised

10. At the end of the Materials and Methods section, the analytical tests and software with version should be added.

Revised

11. The numbers for mean SE values for the right and left eyes have been shifted together (Numbers before and after ±).

Revised

12. The “prevalence rate" is technically incorrect to write, so just word “prevalence” is correct to write.

Revised

13. In tables one and two, some numbers were percentages rather than the prevalence of the disease. It is suggested to check the prevalence again and reanalyse.

Revised

14. Table 3 has some spelling mistakes. Some explanation parts of table were not correct, for example, for illiterates’ participants, the number 1.62 was for hyperopia, but in the context, it is mentioned for low myopia. By using the regression test, a better interpretation can be provided. For example, by changing the age group from one category to another, the odds ratio or …. increases or decreases …. percent.

Revised

15. Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.

Add to the text

16. Most references were old and it is suggested to use more reliable and newer sources in writing the manuscript.

Revised

Thank you again for your insightful feedback and comments.

Shahraki K, et al.

2 Revision 1

3 comments · 7 Oct 2023 – 7 Oct 2023

Referee 2 Reviewer

MINOR REVISION 7 Oct 2023

Dear Editor-in-Chief,

Thank you for the opportunity to review the article titled " Prevalence of Refractive Errors and its associated Factors among the population of the Eye Cohort Study: Southeastern Iran". I have carefully assessed the manuscript and would like to provide my comments and suggestions for improvement.

1. The article's writing needs some corrections and should be checked:

A. In the "Materials and Methods" section, please include the reference number within parentheses to correspond with the relevant source. “A representative sample of the reference population was obtained using the multistage stratified random sampling method ().”

B. In the second stage, he randomly selected three districts from regions of low, medium and high socioeconomic status. What is meant by “he”? Please correct it.

C. Please use a dot (.) between "availability" and "Individuals" to separate the sentences. “and completion of the baseline survey and to conduct follow-up surveys regarding availability Individuals who did not meet study requirements or had severe physical or mental illness and were unable to complete the questionnaire or refer to the cohort center were excluded from the study(18).”

D. Regrettably, the manuscript contained numerous grammatical errors.

2. The intended meaning is spending time at … or the time dedicated to …., so please change or rewrite the sentence “(controlling for cofounder variables including computer time, social network time, and mobile phone time).” to " (controlling for cofounding variables such as time spent on computers, social networks, and mobile phones)"

3. In the tables, Low & Moderate Astigmatism was defined as >0.5D-2.00D, while High Astigmatism was defined as >2.25D. In which groups are individuals with astigmatism between 2.00D and 2.25D categorized? Correct the number.

4. In table 3, check the OR results, because the results showed that having diabetes, hypertension, stroke, and thyroid disease was protective. For example, individuals with diabetes have lower odds of myopia and … compared to those without diabetes and …. In other words, having diabetes is associated with a decreased likelihood of myopia. This suggests a protective effect of diabetes against myopia, meaning that individuals with diabetes are less likely to experience myopia compared to those without diabetes.

5. In the results of table 3, rewrite the interpretations of OR in the correct way. For example, an odds ratio (OR) of 1.56 suggests that individuals with diabetes have 56% higher odds of experiencing low to moderate astigmatism compared to individuals without diabetes.

I hope that my comments and suggestions will be helpful in improving the manuscript. I appreciate the opportunity to contribute to the peer-review process and look forward to the revised version of the article.

Yours sincerely,

Associate Editor

MINOR REVISION 7 Oct 2023

Dear Editor,

In the second review round, the manuscript with ID "137161" needs minor revision.

Sincerely,

Editor-in-Chief MINOR REVISION 7 Oct 2023

Dear Author
Thanks for submitting your valuable manuscript to the journal. Accordingly, we would like to inform you that the review of your manuscript has been completed, and based on the editorial decision, you need to make a "Minor Revision" to your manuscript. Although this manuscript is of sufficient quality to enter the review process, it needs some significant (minor) revisions in some respects.
Best Regards

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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.

Thank you for the opportunity to review the article titled " Prevalence of Refractive Errors and its associated Factors among the population of the Eye Cohort Study: Southeastern Iran" I have carefully assessed the manuscript and would like to provide my comments and suggestions for improvement.

1. The article's writing need some corrections, and it should be checked:

A. In the "Materials and Methods" section, please include the reference number within parentheses to correspond with the relevant source. “A representative sample of the reference population was obtained using the multistage stratified random sampling method ().”

Thanks for your comment and revised it (18).

B. In the second stage, he randomly selected three districts from regions of low, medium and high socioeconomic status. What do you mean of “he” correct it.

Thanks and revised it.

C. Please use a dot (.) between "availability" and "Individuals" to separate the sentences. “and completion of the baseline survey and to conduct follow-up surveys regarding availability Individuals who did not meet study requirements or had severe physical or mental illness and were unable to complete the questionnaire or refer to the cohort center were excluded from the study(18).”

Thanks and revised it.

D. Regrettably, your manuscript contained numerous grammatical errors.

2. You mean spending time at …or the time dedicated to … so can change or rewrite the sentence of “(controlling for cofounder variables including computer time, social network time, and mobile phone time).” to " (controlling for cofounding variables such as time spent on computers, social networks, and mobile phones)"

Thanks and revised it.

3. In the tables, Low & Moderate Astigmatism was defined as >0.5D-2.00D, while High Astigmatism was defined as >2.25D. For individuals with astigmatism between 2.00D and 2.25D, in which groups they categorized? Correct the number.

Thanks and revised it.

4. In table 3, check the OR results, because your results showed that having Diabetes, Hypertension,

Stroke, and Thyroid disease were protective and for example individuals with Diabetes have a lower odds of the Myopia and … compared to those without Diabetes and … In other words, having diabetes is associated with a decreased likelihood of the Myopia. This suggests a protective effect of diabetes against the Myopia, meaning that individuals with diabetes are less likely to experience the Myopia compared to those without diabetes.

Thank you for your comment. The part about myopia has been corrected, and the explanation has been added in the results section.

5. In the results of table 3, rewrite the interpretations of OR in the correct way. For example odds ratio (OR) of 1.56 suggests that individuals with diabetes have a 56% higher odds of experiencing low to moderate astigmatism compared to individuals without diabetes.

Thanks and revised it.

3 Revision 2

2 comments · 14 Oct 2023 – 15 Oct 2023

Associate Editor

ACCEPT 14 Oct 2023

Dear Editor,
The manuscript entitled "Prevalence of Refractive Errors and its associated Factors among the population of the Eye Cohort Study: Southeastern Iran" has been revised appropriately by the authors.
The decision is Accept.
Regards,

Editor-in-Chief

ACCEPT 15 Oct 2023

Dear Author
Based on the reviewers' comments, we congratulate you on the acceptance of your article for publication in this journal and thank you for trusting us. As an expert in the field, you are best placed to explain why your article is exciting or impactful to a broader audience.
Kind regards