Reviewer’s report

Title: Social-Economic Analysis of Patients with Sjogren's Syndrome Dry Eye in East China: a cross-sectional study

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Reviewer: Hamidreza Moein

Reviewer's report:

Authors investigated the annual medication/indirect/auxiliary expenses among patients with sjogren's syndrome dry eye (SSDDE) versus non-SSDE. They also compared the clinical signs of dry eye disease such as tear break up time (TBUT), corneal fluorescein staining, and schirmer's score between the groups. In addition authors calculated the ocular surface disease index (OSDI) and self-rating anxiety scale (SAS) in two groups and correlated the values with expenditures. Their results demonstrated the total expenditure, medication expenditure, and indirect costs are higher among the SSDE patients compared to non-SSDE. Moreover, SAS score had a positive correlation with total medical and Chinese expenditures in the SSDE group. On the other hand, OSDI had a positive correlation with total medical expenditure paid by individual patients (not covered by the insurance) in the non-SSDE.

There are major points that need to be addressed:

1. Translated questionnaires should be psychometrically validated or in another word being validated for both linguistic and cultural translation. This needs more time and effort to make sure the translated questionnaire maintains its reliability and validity to detect what it has been designed for in the original language. Other than language translation other steps should be considered to achieve psychometrical validation such as back translation and pre-testing in a pilot study. (Please refer to the WHO website for more detailed information: http://www.who.int/substance_abuse/research_tools/translation/en/)

These considerations were not made in this study, which makes the results biased.

2. The significant difference between SSDE and non-SSDE characteristics (educational background, retired subjects, time from onset of disease, and especially income) at baseline could potentially biased the results. This should be addressed in the discussion. For example level of education could affect how patients respond to the questionnaires.
3. This study is informative in a way that shows the economic burden of dry eye disease in Chinese population but it is not clear why authors correlated the expenditure with OSDI and SAS. This needs to be addressed in the introduction and then in the discussion. What is the main conclusion of positive correlation between SAS or OSDI and expenditures? How it can affect general healthcare policies or physicians practice?

Specific comments:

1. Introduction: In the first paragraph, please the most updated definition of dry eye disease according to the recently published article by the "dry eye workshop II" in the Ocular Surface. (Ocul Surf. 2017 Jul; 15(3):276-283.)

2. Introduction: Lines 68,69; Cost of dry eye treatment in Asia has been published before (Cost of dry eye treatment in an Asian clinic setting. PLoS One. 2012;7(6):e37711) so maybe you can refer to this or specify that the cost of SSDE was not studied before.

3. Methods: The selection of SSDE group is not clear. Please add specific criteria that have been used in this study for diagnosis of Sjogren's syndrome.

4. Methods: The original SAS questionnaire suggests that patients with score of >36 be evaluated for general anxiety disorder (score of 45 if multiplied by 1.25 (36x1.25=45)). It should be explained why the scores were multiplied by 1.25 or add a reference, which used that scaling. In addition add a reference for choosing score of > 50 as symptoms of anxiety.

5. Methods/Table 1: The questions regarding the treatment are general and not specific for the dry eye disease. Please clarify whether these questions were asking for specific treatments for dry eye disease or Sjogren's syndrome? Since it has not been specified in the questionnaire is this possible that patients included their other treatment medication (such as their medication for controlling blood pressure or blood glucose or etc.) expenditures in this calculation?

6. Results: Lines 186-187, Please add the average number of OSDI scores and SAS scores with separate p values for both SSDE and non-SSDE groups.

7. Results: line 188, Please describe in details what do you mean by "symptoms of anxiety"? Does it mean that those number of patients had SAS score of >50?

8. Results: Line 188, please add P value for comparing number of patients with anxiety in the SSDE vs. non-SSDE.

9. Results: Please describe if patients Sjoren's syndrome also were using other oral systemic medication as part of their disease treatment? Does that included in the total amount of money calculated or not?
10. Discussion: It is important to explain if all the study patients had insurance and if they had different or similar insurance coverage. This is crucial to be clear since it can affect the amount of money they spent out of pocket.

11. Discussion: Line 245, Please describe how SSDE or non-SSDE may have affected the shelter and food cost? This is vague.

12. Discussion: Please add relative articles about the cost of treatment in other countries into the discussion and compare with your results. (e.g., Cost of dry eye treatment in an Asian clinic setting. PLoS One. 2012;7(6):e37711)

13. Figure 1 legend: Please be consistent on how to refer to figures. For example in the last line "c" is put in parenthesis but this has not been done with the other figures.

14. Table 3: In some instances instead of a range one number is written in the table. Please correct accordingly.

15. Table 5: On line 2 please change ST to S1T.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published
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