Author's response to reviews

Title: Computer aided quantification for retinal lesions in patients with moderate and severe non-proliferative diabetic retinopathy: a retrospective cohort study

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Author's response to reviews: see over
Dear Editor,
Enclosed is our latest version of by Huiqun Wu, Xiaofeng Zhang, Xingyun Geng, Jiancheng Dong, Guomin Zhou entitled “Computer aided quantification for retinal lesions in patients with moderate and severe non-proliferative diabetic retinopathy: a retrospective cohort study”, that is, the revised version of our paper. We are pleased to answer the questions of the reviewers point to point as follows.

Question #1: In the background portion of the abstract, the authors say ‘Retinal lesions like micro-aneurysms and exudates are important for clinical diagnosis for diabetes retinopathy’.
Change this sentence to ‘Detection of retinal lesions like micro-aneurysms and exudates are important for the clinical diagnosis of diabetes retinopathy.
Answer: We have revised the sentence accordingly.

Question #2: In the background portion of the abstract the authors say ‘The traditional subjective judgments by clinicians are dependent on their experience and lack of consistency, therefore quantification of lesions is worthwhile’. Please change the sentence to ‘The traditional subjective judgments by clinicians are dependent on their experience and can be subject to lack of consistency and therefore a quantification method is worthwhile’.
Answer: We have revised the sentence accordingly.

Question #3a: In the Dataset selection and preparation section, the authors say ‘All the fundus images were obtained from the same digital fundus camera under 45° field of view (FOV) and macular as image center to keep the image acquisition condition consistency at 3504 x 2336 pixels, and the patients accompanied with excluded.’ This sentence is too long and confusing. Please fragment like shown below. ‘All the fundus images were obtained with the same 45° field of view (FOV) camera, with the macula at the center. The image acquisition conditions were consistent at 3504 x 2336 pixels.
Answer: We have revised the sentence accordingly.

Question #3b: Please explain what ‘the patients accompanied with excluded’ means?
Answer: We mean that the patients we included were only those ones with diabetes, not including those patients with hypertension. We have added the missing word “hypertension” in our edited version.

Question #4: Correct the spelling of 'Exduate' to 'Exudate' in the 'Exduate detection' section in Methods.
Answer: We have corrected in the sentence accordingly.

Question #5: In the ‘Exudate detection’ writeup, the author says ‘Then, morphological operators including erosion and dilation were performed on segmented binaryimage to exclude the noisy’. Change the word noisy to noise.
Answer: We have revised the sentence accordingly.

Question #6: In the ‘Exudate detection’ writeup , the author says ‘To prevent the influence of pixel calibration, the area of total exudates were divided by the area of optic disk, which is name as exudates/disk ratio were calculated’. To make this sentence clear, change this sentence to To prevent the influence of pixel calibration, the area of total exudates were divided by the area of optic disk and this value was called exudates/disk ratio.
Answer: We have revised the sentence accordingly.

Question #7: In the statistical analysis section, change ‘The P value less than 0.05 was treated as statistical Significance’ to ‘The P value less than 0.05 was treated as statistically significant’.
Answer: We have revised the sentence accordingly.
Question #8: Please discuss if other computer analysis methods for NPDR classifications are available and how this method compares with the other models.

Answer: Thanks for the reviewer’s suggestion. There are some databases for algorithms to compare their efficiency; normally these algorithms are about image processing like retinal vessel segmentation. In the aspect of retinopathy grading algorithms, different researchers use different datasets from clinical departments, as we mentioned in our discussion part “Some systems have been developed to determine DR stages—normal, mild moderate NPDR, severe NPDR and PDR stages [6-9].”, thus making our comparison difficult. Anyway, it’s a good recommendation for our next study on improving our algorithms.

On the submission date last year, I’m on my academic exchange in Key Laboratory of Medical Imaging Computing and Computer Assisted Intervention (MICCAI) of Shanghai, now I’m return to my own working department, that is, the Department of Medical Informatics, Nantong University. So could I exchange the orders of address in the article?

Besides, we have gone through the whole article to make the article more readable and check the languages.

All the changes have been marked in different colors in the latest revised edition.

Thanks again for your work on our manuscript.

Best wishes,
Sincerely yours,
Huiqun Wu