Author's response to reviews

Title: Development of an Integrated Sasang Constitution Diagnosis Method using Face, Body Shape, Voice, and Questionnaire Information

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Dr. Carmela S. Quidoles
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“Development of an Integrated Sasang Constitution Diagnosis Method using Face, Body Shape, Voice, and Questionnaire Information” by Jun-Hyeong Do, Eunsu Jang, Boncho Ku, Jun-Su Jang, Honggie Kim and Jong Yeol Kim

Dear Dr. Carmela S. Quidoles,

Thank you very much for your kind comments dated April 10, 2012 regarding our paper entitled as above. Also, we wish to express our thanks to the referees for their comments.

As you instructed, we have revised our paper by fully taking into consideration the referees’ comments, as can be seen in the answer sheet for the reviewers’ comments.

We hope that this revised version be acceptable.

Sincerely yours,

Jong Yeol Kim, OMD, Ph.D.
Vice-President
Korea Institute of Oriental Medicine
Reply to the Reviewers’ Comments

1. Answers to Comments of Referee 1

Minor essential revision
1) Methods section: 1st line: Need to specify how many practitioners diagnosed the SC types

Ł We specified the number of practitioners in the 1st line of ‘Participants and data acquisition’ sub-section as follows:

“23 or more SCM practitioners, who had more than five years of experience in clinical practice, diagnosed the patients’ SC types.”

Discretionary revisions
1) Under the conclusion section, it would be useful to have an explanation of how the model used could be better refined and improved upon. Also, in a practical sense, is this diagnostic tool of use for clinicians at this point in time or is it not developed sufficiently?

Ł We commented on both the use of the diagnostic tool for clinicians and the further works to improve upon the current model in the second to last paragraph of ‘Discussion & Conclusion’ section.

“The proposed model was implemented in the form of a web-based prototype and is currently being tested in several clinics to get feedback from the practitioners. In the future, it will be necessary to collect more data on the TY type to complete the SC diagnostic model. Despite 2,973 samples being collected, only 1,075 samples were used, mainly due to a lack of featured extraction techniques and a lack of data quality control. It is necessary to develop an advanced technique for automatic feature extraction and to explore new feature variables for an improved diagnostic method. A different weighting
method might be considered to properly reflect the importance of each diagnostic component. Furthermore, a future study may place emphasis on improving the performance for the groups which have poor diagnostic accuracies and sensitivities. At this point, we might need to analyze the typical subjects chosen by consensus from among SCM practitioners.”

2. Answers to Comments of Referee 2

In general this is an interesting paper that introduces a new diagnosis method for traditional Korean medicine. However, the paper could be improved in several points:

2) It is not very clear how the accuracy of the method is tested?
4) The issue of training set and test set should be clarified. What are these? How the authors calculated or gained these? etc.

We used test set to validate our proposed model. Among the data we acquired, some were assigned to training set for the construction of a diagnostic model, whereas the others were assigned to test set for the validation of the constructed model. We added a comment on training set and test set in the second to last paragraph of ‘participants and data acquisition’ sub-section.

“From 23 sites (Oriental medical clinics), 2,973 patients, ranging in age from teenagers to people in their eighties, were recruited between November of 2007 and July of 2011 (see Additional file 1). Among these 2,973 patients, 2,462 patients recruited between November of 2007 and July of 2010 were assigned to training set for the construction of a diagnostic model, whereas the others were assigned to test set for the validation of the constructed model. All data that contained clinical information were stored in the Constitutional Information Bank at KIOM.”
3) It seems that the authors need to perform sensitivity analysis for their arguments for the accuracy of the method.

Lo We performed the sensitivity analysis and showed the result in Table 3 and Table 4. We also commented on the sensitivity analysis result in ‘Predicted results of the integrated diagnostic model’ sub-section and ‘Discussion & Conclusion’ section.

“The sensitivity of the model was relatively high for TE but was comparatively low for SY male and SE female.”

“Furthermore, a future study may place emphasis on improving the performance for the groups which have poor diagnostic accuracies and sensitivities. At this point, we might need to analyze the typical subjects chosen by consensus from among SCM practitioners.”

1) The manuscript should be simplified. At present it looks very complicated!

5) The paper would benefit from shortening its length.

Lo As the reviewer suggested, we reduced the length of the paper in the revised manuscript.

(1) The first paragraph which was not directly related to our issue was deleted in ‘Background’ section.

(2) ‘Training and test sets’ sub-section which seemed to be redundant was removed and a comment on training set and test set was added in the second to last paragraph of ‘participants and data acquisition’ sub-section.

(3) Unnecessary sentences were removed in ‘Candidate feature variables – Body shape’ sub-section.

(4) ‘Compensating for age differences’ sub-section was removed and the content was added in ‘Candidate feature variables’ sub-section to simplify the structure of manuscript.

(5) Equations (1) through (5) which could be replaced by references were deleted, and ‘Candidate feature variables – Compensating for age differences’ and ‘Model for
Sasang constitution diagnosis – Individual diagnostic models’ sub-sections were reworked.

(6) Table 3 was divided into Table 3 and Table 4 to improve the readability.

(7) The second, third, and fourth paragraphs which seemed to be redundant were removed in ‘Discussion & Conclusion’ section and a comment on an individual diagnostic model was supplemented in the first paragraph.

3. Answers to Editorial request

1) Please document under the Methods section the details of the type of consent sought from the participants.

We documented a comment on the type of consent in ‘Participants and data acquisition’ sub-section.

“This process was approved by the Korea Institute of Oriental Medicine (KIOM) - Institutional Review Board (I-0910/02-001) and we obtained written informed consent from the subjects.”