PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	A study on the development of an infectious disease specific health
	literacy scale in the Chinese population
AUTHORS	Tian, Xiangyang; Di, Zeqing; Cheng, Yulan; Ren, Xuefeng; Chai,
	Yan; Ding, Fan; Chen, Jibin; Southerland, Jodi; Cui, Zengwei; Hu,
	Xiuqiong; Xu, Jingdong; Xu, Shuiyang; Qian, Guohong; Wang, Liang

VERSION 1 - REVIEW

REVIEWER	Peter J Schulz Institute of Communication and Health, University of Lugano, Switzerland
REVIEW RETURNED	21-Apr-2016

GENERAL COMMENTS	development, test and validation of a health literacy measure applicable in the domain of infectious diseases and intended for Chinese people. There's nothing to be said against the development and testing procedures or the statistical analyses. There is one exception though, I do not think it was a lucky choice to test validity on a sample of 9000 persons. Such a large sample virtually renders the instrument of significance testing meaningless because even the smallest differences would be significant. I also do not agree with the authors claim that a large sample is one of the assets of the study.
	The manuscript, however, has some shortcomings in writing and organization that should be removed in a revised version. Generally, this needs a copy editor who knows his trade and is proficient in English. The English is generally rather good, what it takes is someone who notices when it is not. Some more specific points:
	1. The abstract reports in the methods section only the statistics at great length, but does not tell anything about the scales or the sample the scales are tested were with. Consequently some of the results, especially with regard to subscales 1 and 2, are incomprehensible to the reader.
	2. The first three sentences of the introduction give different definitions of health literacy. The first is totally obscure to me, the second is a succinct and clear and comprehensive definition, and the third one repeats some elements from the second one but mysteriously adds the notion of rational values, which I do not think is a reasonable concept.
	3. The outlay of the methods section forgets to mention data collection.
	4. There is no reason given for turning six dimensions into two subscales by using dimensions 1-5 for Subscale 1.
	5. One gets lost in the description of the sampling procedure, and I miss a rationale for this peculiar procedure chosen.

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6. Finally I advise that the authors critical think about whether all analyses need to be documented so exhaustively. This pertains to tables, figures and text.
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REVIEWER	Sun, Xinying School of Public Health, Peking University, China
REVIEW RETURNED	23-Apr-2016

GENERAL COMMENTS	This article explored a health literacy scale regarding infectious diseases which reliability and validity were good. It is an interesting study.
	Some comments as below should be considered. 1. This study had a large sample of 9000 residents. All of the respondents could be randomly divided to two samples, one half was used to do EFA (exploratory factor analysis) and the other half to do CFA(confirmatory factor analysis). The result of EFA with half sample should be almost same with EFA with total sample. CFA could be more powerful to test the validity of the scale. 2.Cronbach's Alpha coefficient if item deleted means if this item were deleted from the scale, the Cronbach's Alpha of the TOTAL scale should be change to how much, so lower Cronbach's Alpha coefficient if item deleted means higher internal consistency reliability. Thus, the results of Table 5 need to check. 3. Usually, research articles are written in third person. Of course, there are a small number of them written in first person. 4. Was adequate health literacy or not judged by ROC curve? The cut point is 16.74? But how to use it with the scale of 22 items? Answering how many questions correctly was defined to adequate health literacy? 5. Please give the meaning of 0 or 1 of IDSHL in binary logistic
	analysis, otherwise, readers could misunderstand the meaning of OR and its CI.
	6. In Table 3, please give each item a short phrase rather than the number of it and also give the name of each factor instead of its number.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Peter J Schulz

Institution and Country: Institute of Communication and Health, University of Lugano, Switzerland and Competing Interests: None declared

This manuscript reports exactly on what the title says, the development, test and validation of a health literacy measure applicable in the domain of infectious diseases and intended for Chinese people. There's nothing to be said against the development and testing procedures or the statistical analyses. There is one exception though, I do not think it was a lucky choice to test validity on a sample of 9000 persons. Such a large sample virtually renders the instrument of significance testing meaningless because even the smallest differences would be significant. I also do not agree with the authors claim that a large sample is one of the assets of the study.

Response

We thank Dr. Peter J Schulz very much for the comments. We agree with Dr. Peter J Schulz. The sample size of 5-10 times of the item number is enough for the development of psychometric scale.

However, the aims of this study are not only to test the psychometrical properties of the scale, but also to test the usability and to calculate the mean value and passing mark of the IDSHL of the Chinese population. Therefore, the sampling method of the present study not only considered the need of scale development, but also considered the need to represent Chinese population with different socioeconomic levels. We thank Dr. Peter J Schulz for the kind suggestion, and have made the necessary supplement in the corresponding position to explain this sampling consideration.

The manuscript, however, has some shortcomings in writing and organization that should be removed in a revised version. Generally, this needs a copy editor who knows his trade and is proficient in English. The English is generally rather good, what it takes is someone who notices when it is not.

Response

We did the language editing again carefully as suggested by the reviewer.

Some more specific points:

1. The abstract reports in the methods section only the statistics at great length, but does not tell anything about the scales or the sample the scales are tested were with. Consequently some of the results, especially with regard to subscales 1 and 2, are incomprehensible to the reader.

Response

We thank Dr. Peter J Schulz for this suggestion. We have added some information about the scale and sample in the method part of the abstract.

2. The first three sentences of the introduction give different definitions of health literacy. The first is totally obscure to me, the second is a succinct and clear and comprehensive definition, and the third one repeats some elements from the second one but mysteriously adds the notion of rational values, which I do not think is a reasonable concept.

Response

We are sorry for the confusion. The first definition was cited from Renkert S & Nutbeam D. (Health Promot Int 1998, 13:349-364.) as saying 'Health literacy implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions. Thus, health literacy means more than being able to read pamphlets and make appointments'. We used the 1st sentence to define, the second sentence to supplement and the third sentence to explain. We have revised the paragraph to clarify the meaning.

3. The outlay of the methods section forgets to mention data collection.

Response

Thanks for reminding. We have a separate paragraph of 'Data collection' following the 'Sampling'.

4. There is no reason given for turning six dimensions into two subscales by using dimensions 1-5 for Subscale 1.

Response

Subscale 1 and Subscale 2 are integral part of the IDSHL scale. However, the Subscale 1 is designed to mainly measure the necessary awareness, knowledge, skills of individuals to prevent or treat infectious diseases, and subscale 2 was created to measure individuals' ability to access, understand health information, and the basic numeracy skill. We divided them into two subscales to differentiate their purposes. We have added information to clarify.

5. One gets lost in the description of the sampling procedure, and I miss a rationale for this peculiar

procedure chosen.

Response

Sorry for the confusion about the multi-staged sampling procedure. The aim of sampling method is to represent the diversity of the socio-economic status of the Chinese population. We have explained this point in the text.

6. Finally I advise that the authors critical think about whether all analyses need to be documented so exhaustively. This pertains to tables, figures and text.

Response

Thanks for the suggestion. The statistical analyses of the present study are truly exhaustively documented though we try to follow the standardized procedure. We may request to maintain the status quo.

Reviewer: 2

Reviewer Name: Sun, Xinying

Institution and Country: School of Public Health, Peking University, China Competing Interests: None declared.

This article explored a health literacy scale regarding infectious diseases which reliability and validity were good. It is an interesting study.

Some comments as below should be considered.

1. This study had a large sample of 9000 residents. All of the respondents could be randomly divided to two samples, one half was used to do EFA (exploratory factor analysis) and the other half to do CFA(confirmatory factor analysis). The result of EFA with half sample should be almost same with EFA with total sample. CFA could be more powerful to test the validity of the scale.

Response

We thank Professor Sun's kind suggestion. We had planned to use the CFA analysis, however, given that there has been no overwhelmingly accepted theory or model so far, we used the EFA in the present study.

2.Cronbach's Alpha coefficient if item deleted means if this item were deleted from the scale, the Cronbach's Alpha of the TOTAL scale should be change to how much, so lower Cronbach's Alpha coefficient if item deleted means higher internal consistency reliability. Thus, the results of Table 5 need to check.

Response

We thank Professor Sun so much for this very important suggestion. We have re-checked Table 5 cautiously, and all the Cronbach's Alpha coefficients if item deleted are lower than the value of overall internal consistency reliability (0.84). Therefore, we think that to maintain the item is acceptable.

3. Usually, research articles are written in third person. Of course, there are a small number of them written in first person.

Response

Thanks a lot for this kind suggestion. We had written this paper in third person originally, but some other reviewers had proposed the first person.

4. Was adequate health literacy or not judged by ROC curve? The cut point is 16.74? But how to use

it with the scale of 22 items? Answering how many questions correctly was defined to adequate health literacy?

Response

Thanks a lot for the very important questions. The purpose of ROC curve analysis in the present study is vulnerable population screening with 16.74 as the cut point on IDSHL scale. Quartiles may be used to distinguish between ideal, good, average, and poor in health literacy. It's come to our attention that almost all of the psychometric scale use statistical methods of scoring when employed as screening or diagnostic tool. Each item of the subscale 1 has a score value, and when one individual finish the scale, he/she would earn a total score. That's different from the questionnaire which was used to measure the frequency of choices for questions/items. So we hope to retain our analysis methods.

5. Please give the meaning of 0 or 1 of IDSHL in binary logistic analysis, otherwise, readers could misunderstand the meaning of OR and its CI.

Response

Thanks for the suggestion. We have revised it in the text.

6. In Table 3, please give each item a short phrase rather than the number of it and also give the name of each factor instead of its number.

Response

We thank Professor Sun for this very important suggestion. We have added the name of each factor in Table 3.

VERSION 2 – REVIEW

REVIEWER	Peter J Schulz Institute of Communication & Health, University of Lugano, Switzerland
REVIEW RETURNED	31-May-2016

GENERAL COMMENTS	The authors have revised the manuscript in line with the suggestions by the reviewers and done a fairly good job on it. I am satisfied with their reaction to my comments and the revisions that were made in
	valid I think. The reader of the abstract will not know what subscales 1 and 2 are, why they're there, what they measure. And I still think the abstract reports too much on data handling and too little on sampling or the substance of the results.

REVIEWER	Sun, Xinying Department of Social Medicine and Health Education, Peking University Health Science Center, Beijing, China
REVIEW RETURNED	30-May-2016

GENERAL COMMENTS	The authors revised the manuscript according to two reviewers'
	comments or gave the explanation for what they didn't revise.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Peter J Schulz

Institution and Country: Institute of Communication & Health, University of Lugano, Switzerland

Competing Interests: None declared

The authors have revised the manuscript in line with the suggestions by the reviewers and done a fairly good job on it. I am satisfied with their reaction to my comments and the revisions that were made in consequence of them, except one. My first specific comment is still valid I think. The reader of the abstract will not know what subscales 1 and 2 are, why they're there, what they measure. And I still think the abstract reports too much on data handling and too little on sampling or the substance of the results.

Response:

Thanks Professor Peter J Schulz for the suggestions. We have revised the abstract following the suggestions.