Reviewer’s report

Title: Impact of communicative and critical health literacy on understanding of diabetes care and self-efficacy in diabetes management: A cross-sectional study of primary care in Japan

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Reviewer: Angela Brega

Reviewer’s report:

The authors examine the relationship between health literacy and diabetes knowledge and self-efficacy, also examining the association of patient-physician communication with knowledge and self-efficacy (while controlling for health literacy). The authors have made improvements to the paper based on the prior review, which has helped to make the paper’s objectives and methods more clear. However, I think the authors should make further revisions to strengthen the paper.

A. Discretionary Revisions

1. The authors use the term “understanding of diabetes care” for a construct that appears to capture diabetes knowledge. I would recommend that the authors use the latter term, which would be more immediately understandable to researchers in the field.

2. Page 5, Line 13: Perhaps the authors can use pharmacotherapy as an example of a self-care task in this sentence, listing other tasks as well (e.g., weight management, blood glucose self-monitoring). Otherwise, the sudden reference to pharmacotherapy seems out of place.

3. Page 5, Lines 7-9: Since the authors do not mention access and utilization of health care again, I think it would be best not to mention it in reference to the Paasche-Orlow and Wolf model.

4. Page 5, Line 11-13: Should there be a citation following this first sentence? It sounds as though the authors are citing prior work here.

5. Page 5, Line 18-19: I would suggest starting a new paragraph with the sentence that begins “As poor health literacy....”

6. Page 6, Line 17: I would suggest starting a new paragraph with the sentence that begins “In countries like Japan....” The authors may want to reword the reference to “primary school enrollment ratio,” which may not be entirely clear to readers. Could they say “where 100% of the population completes primary school” or something along those lines?

7. Page 7, Lines 8-9: I would suggest omitting this sentence.

8. Page 9, Line 3: The authors should define the word “prefecture” or use other terminology.
9. Page 9, Line 10: This paragraph is very lengthy. I would recommend breaking it up.

10. Page 11, Lines 11-12: Use of the words “credibility,” “valid,” and “reliable” made me wonder what the reading level of the health literacy questions is. Has that been assessed?

11. Page 12, Line 19: I would suggest omitting the part of this sentence about knowledge and self-efficacy serving as “surrogates” for behavior. Knowledge and self-efficacy are important variables in their own right and should not be used as proxies for self-care behavior.

12. Page 17, line 3: Please omit the mention of “total HL score.”

13. Page 18, Line 16: I would suggest omitting reference to social support and Internet use. These were just covariates and not main aims of the paper.

14. Page 19, Lines 2-4: Please clarify that functional health literacy played a weaker role in this sample, which we know may be different than other samples given the high functional health literacy level.

15. Page 20, Lines 4-6: I think the authors should note that targeting consecutive patients would have reduced potential for this bias.

16. Page 20, Lines 12-13: I would suggest omitting this sentence, which does not seem to have to do with the possibility that patients received help completing the questionnaire.

17. Tables 2 and 3 include a lengthy footnote that describes the covariates included in the models and the coding of those items. I do not object to having the variables noted there, but would omit details about variable coding.

B. Minor Essential Revisions

1. The second paragraph on Page 5 (starting on Line 11) plays a critical role in justifying the work the authors are doing. Although the last part of the paragraph clearly makes the point for this work, the first part of the paragraph seems to jump from topic to topic. One thing that might help is to reorder the text to address patient-provider communication and self-care in the order in which they are mentioned in the first sentence. Further, in the last sentence of this paragraph (page 7, line 6), the authors may want to add something about the need to examine the patient-provider relationship.

2. Page 8, Lines 3-4: The authors mention Internet use here to justify its inclusion as a covariate later on. I think they should expand upon this further. How would they expect Internet use to be related to the outcome variables (knowledge and self-efficacy)? How might it be related to the three types of health literacy (communicative health literacy would seem particularly relevant)? Can the authors cite existing literature along these lines?

3. Page 10, Line 16: I don’t think that the use of the word “anonymous” is quite right. Later in the paper, the authors mention that the survey data were linked up with clinical data from the physician. There must have been some sort of identifiers on the questionnaires that allowed the authors to do that. To me, that
would suggest that the survey was not completely anonymous, just that the
respondent’s name was not written on it. I think the authors could forgo mention
of anonymity.

4. Page 15, Line 7: It would be best to indicate that the reports were produced
after patient survey data were received. That procedure, which I assume the
authors followed, would ensure that clinical data were not submitted until patients
completed the survey, which was considered the indicator of consent.

5. Page 15, Line 17: I still feel the authors could better clarify the reasons for the
inclusion of the covariates they selected. Were bivariate analyses conducted to
identify needed covariates? Were they based solely on theory? Perhaps the
authors could add a section title “Covariates” following discussion of their other
measures.

6. Page 16, Line 18: Please clarify what is meant by “included its use by family
members” and why family member use makes sense to include in this paper.

7. The authors should discuss functional health literacy to the same degree that
they discuss the other two types of health literacy. They sometimes mention it
and sometimes don’t.

   o Page 8, Line 8, in discussing the study’s objectives, the authors don’t mention
   functional health literacy. I would suggest that they mention it here – as it is part
   of their analysis – but clarify that the other two types may be particularly
   important in this sample.

   o Page 11, Lines 8-12: The authors provide example items for the
   communicative and critical health literacy scales, but not the functional scale.
   Please include a relevant item.

8. Page 20, Lines 6-7: I don’t recall the authors making this clear in the Results
section. I think it would be helpful to mention this finding there.

C. Major Compulsory Revisions

1. I continue to find the analytic approach puzzling. It is unclear to me why a
hierarchical approach is used. The authors are asking two questions: (1) how is
health literacy related to knowledge and self-efficacy and (2) how is
patient-provider communication related to knowledge and self-efficacy, over and
above the effects of health literacy. It makes sense to me to run two models,
which equate to the authors’ Models 3 and 4. I don’t see any reason to run an
unadjusted model (Model 1) or to run Model 2, with only some of the covariates
the authors are interested in. The fact that they never discuss the results of the
individual models (except for the difference between 3 and 4) suggests that the
other models do not provide added value over what just two models could
provide.

2. Page 12, Lines 3-16: The authors describe a set of items assessing
patient-provider communication. Although the items are well correlated, the
authors chose to use a single item, as opposed to the full scale. I have a variety
of reactions this…

   a. What is it the authors want to capture about patient-provider communication?
Is it just whether the patient perceives the doctor to communicate clearly or is it a more comprehensive view of the relationship that incorporates the patient’s sense of being known, respected, and listened to. The way the authors discuss the importance of the patient-provider relationship in the Introduction, I would suggest that they should use a more comprehensive variable based on all of the items included in the scale.

b. If the authors choose to use the variable as it is now, they should note that this variable represents the patient’s subjective perception of the doctor’s communication skills. What I think is concerning about that is that the variable also captures the patient’s ability to understand verbal communication, which would seem to be confounded with communicative health literacy. That is, patients would need to be able to understand health-related verbal communications to have strong communicative health literacy skills.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests: I do not have any competing interests to report.