Reviewer's report

Title: Factor analysis of self-treatment in diabetes mellitus: a cross sectional study

Version: 2 Date: 11 July 2011

Reviewer: Fernando Rubinstein

Reviewer's report:

Dear editor

In italic are my previous comments (numbered) followed by my current assessments of the revised manuscript sent by the authors

Major Revisions:

1) Introduction does not provide an adequate level of information about the topic. It does not provide a hypothesis or specific aims for the study. An appropriate justification of the methods used and the goals to be achieved with factor analysis are not clearly stated.

I think the paper still fails to provide important information about the very complex and multifactorial phenomenon of Self treatment behaviours, but authors have added some information on the methods.

A note of caution is that they intend to assess the prevalence of self treatment behaviors in diabetic patients in Kashan, but the composition of the sample is a convenience sample of diabetic patients admitted into the hospital or attending the ambulatory clinic, so results are limited only to a sample of those patients.

Methods

2) Questionnaire development (2nd paragraph): It is still not clear if this study is part of the evaluation process of that instrument or if it has been previously validated beyond the face validity assessment by a panel of experts in the field.

3) Please provide references which describe with further detail the development and validation of the instrument, the selection of the questions of the survey, the psychometric properties and the foundation to be used as a test to assess self treatment behavior based on a summary score. Please clarify how reliability was evaluated in the pilot study and the full sample.

I was unable to find an English translation of the qualitative study referred by the authors. Not enough information is provided on the pilot study on how they developed and validated the instrument to measure such behavior through a summative score from the questions of this survey to warrant the use of the instrument as a valid measure of self treatment behavior.

4) Please clarify if the survey was self administered or obtained through patient interviews.

Done, thank you
5) Statistical analyses (last sentence) Please include a brief explanation of the assessment of the distribution of the scores and the statistical test used to evaluate mean score differences by the different characteristics.

Information provided on the use of parametric tests to compare scores among different groups. The score is a result of the sum of each question based on an ordinal scale (from 1 to 4 points) across the survey. The mean self-treatment score of the participants was reported as 45.8 ± 8.8, but no information is provided regarding distribution of scores or theoretical different categories of self treatment behavior based on the scores. The reported associations between self treatment behavior and education or the presence of hypertension or hyperlipidemia are based on a difference of 2.5 points. Readers should be aware of the scoring system and what magnitude of a difference is considered clinically relevant (and why), not just statistically significant. I was unable to find an explanation about the meaning of score differences.

In addition, reports of the comparison of scores among different groups are based on crude analyses with no attempt to adjust for possible confounders such as education or age.

6) Methods should include a detailed explanation of the factor analysis and how it was carried out.

Somewhat expanded. Thank you

8) (second paragraph: Self treatment behaviors): Authors describe that 50% of the patients reported self-treatment while 21.7% chose practicing self treatment always or most of the time. Please clarify the options.

Done, thank you

10) Results of Factor analysis: It is not clear how the items in the questionnaire or other characteristics relate predominantly to the factors described in table 2. A factor loading matrix (showing only significant ones) and a scree plot may be helpful to show this more clearly, especially if a clear break in the plot is found after a number of factors.

Done, thank you

11) The study reports results of a “medium tendency” for self treatment in these patients based on the summary score. This may also be explained by a tendency of the respondents to avoid the extreme options (such as never or always) in these types of scales, and this possible bias should be mentioned.

Done, thank you

12) It should be noted that the participants of this study were diabetic patients seeking care at the ambulatory clinic or admitted to the hospital due to complications. Since the instrument of data collection is a questionnaire, patients may respond differently than diabetic patients in the community.

14) The administration of the survey in different contexts (ambulatory vs. hospital) may influence the responses. Please comment

15) The selection of participants was based on convenience sampling. Please comment if that may or
may not be a potential source of bias.
Briefly mentioned in the discussion

19) Tables
Table 1: Please add the definitions of clinical problems such as renal problems, hypertension, cardiac disease and hyperlipidemia.
Done, thank you
Table 2. Authors could present this table with headings for factor/ description/ eigenvalue/percent of variance, cumulative variance.
Done, thank you

20) Please consider revising the overall writing of the manuscript and general use of English
Manuscript needs edition

**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**
I declare that I have no competing interests