PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Association between patients' beliefs about medicines and adherence to drug treatment after stroke
AUTHORS	Sjölander, Maria; Eriksson, Marie; Glader, Eva-Lotta

VERSION 1 - REVIEW

REVIEWER	Michael Diefenbbach, Ph.D. Associate Profesor & Director of Research Department of Urology & Oncological Sciences Icahn School of Medicine at Mount Sinai New York, New York, USA
REVIEW RETURNED	31-Jul-2013

GENERAL COMMENTS	This cross-sectional study examines the associations between stroke patients' beliefs about their medicines and adherence to drug treatment 3-months after their stroke. Results indicated that overall adherence was high with 87.5% of patients being classified as adherent. Non-adherent, compared to adherent patients had lower scores on the Beliefs about Medication Questionnaire's (BMQ) Necessity and Benefit subscales, as well as higher scores on the BMQ Concern, Harm and Overuse subscales. Beliefs that the prescribed treatment is less useful were also more common among non-adherent patients. This study has many strengths, it focuses on stroke patients' adherence to potentially life-saving medication post stroke, thus addressing an important public health need. The sample size is sufficiently large to conduct necessary sub-analysis. The analyses are carefully done, including non-responder and sensitivity analyses. Finally, the study is based on an established theoretical model which guided the selection of study measures. Study results have important implications for intervention development to increase adherence among patients. Here the study falls somewhat short. Other than recommending that care-givers should take into account patients' beliefs about medications, the authors make no specific suggestions. A more detailed discussion of how such assessments might be incorporated into the clinical practice and who might be best suited for this task would add to the paper.

REVIEWER	Howard Leventhal, PhD Board of Governors Professor Rutgers, The State University of New Jersey
REVIEW RETURNED	12-Aug-2013

THE STUDY	3 month follow-up is a bit short for assessment of post stroke adherence. No to the final question suggests the authors met requirements.
RESULTS & CONCLUSIONS	General The investigators report significant relationships between medication beliefs (BMQ Necessity and Concerns and illness beliefs, single item scales on the IPQ only one of which was related to adherence; low levels of belief in usefulness of treatment. Other Illness beliefs were not related to non-adherence. The data's main value is focus on potentially changeable beliefs to improve non-adherence. Detecting this across multiple illnesses in more than one culture is certainly of value for advancing treatment and focusing research on other aspects of the adherence problem. The major shortcomings of the study, including its cross sectional nature and very low levels of non-adherence 3 months post stroke, are mentioned by the investigators. Longitudinal data with rates of non-adherence at 1 and 2 years post stroke would provide a more detailed picture of the adherence problem. Most importantly, additional factors, including beliefs about the illness itself might come into play at later points in time. It would be interesting to know if there was sufficient variation in the perception of stroke at this early time point in this to a degree, self selected sample, to detect relationship between IPQ and adherence at so early a time point. One suspects that might be the case among as the registry data show higher levels of prior stroke among non-responders that might affect the current perception of stroke as a treatable event. It would be useful to add a comment on both the temporal and registry factors. I for one am not a big fan of the brief IPQ as the items do not assess beliefs and/or perceptions that most directly related to perceived need for treatment; examples for stroke would be items assessing appraisal of symptom change, e.g., "If you have no symptoms for several past months do you feel you are be back to your pre-stroke self?" A coherence question might go on, "..and have less need for medication?" Although I was curious about the means and variances for the IPQ, the logic of the Common-Sense Model is consistent with treating medication beliefs as the primary target for interventions as they are most proximal to behavior. The dimensions tapped by the brief IPQ may also be more relevant for non-adherence in populations where variability in illness beliefs are

	likely more common. The data were analyzed appropriately and communicate a worthwhile message though the value of the message may be diluted by the study limitations, e.g., cross sectional and very low levels of non-adherence at 3 months. Viewing these statistically significant effects as unimportant because they are of small magnitude, ignores that small magnitude add up as samples increase in size and a problem continues over multiple years. The data would be much more valuable if it is a precursor to a follow-up RCT with a focus on adherence over 2 to 3 or more years rather than 3 months. <u>Specific Detail</u> Table 5: Need column Ns, i.e., for non adherent and adherent.
GENERAL COMMENTS	The analyses and write up are clear though the limitations mentioned by the investigators (cross sectional; 3 month follow-up) reduce the studies overall value.

VERSION 1 – AUTHOR RESPONSE

Response to comments from Reviewer 1:
- We have developed the discussion about how the results could be incorporated into clinical practice.

Response to comments from Reviewer 2:
- Three months follow-up was chosen mainly for the possibility to include 3 months data from the stroke register. Sending our questionnaire together with the stroke register questionnaire also made it possible to include a larger sample of patients. Although 3 months is a short period after stroke, finding associations between beliefs about medicines and adherence indicate that those rather few patients who are non-adherent early stand out in terms of beliefs about medicines.

- We have planned to send the same questionnaire again to the same patients 2 years after stroke onset. Pharmacy refill data will also be included to assess adherence to treatment. We will also be able to explore whether patients beliefs and perceptions have change over time.

- We have in the discussion included that patients with a history of stroke or patients who have used the drugs before stroke could be more inclined to have opinions about stroke and medicines. We have also included a section about the higher proportion of patients with a history of stroke among non-responders.

- We have for review purpose uploaded a separate file with the results for all questions in the brief IPQ, comparing adherent with non-adherent patients and with variation in answers presented as medians and interquartile ranges. (It was not possible to include the table in this text box)

- The Brief IPQ was mainly chosen to minimize the number of questions. Another questionnaire was sent at the same time as ours to a generally old population, often with poor health. We have realized

the limitations of the Brief IPQ. It will be interesting to see if the 2 year follow-up will show other results on illness perceptions as measured on Brief IPQ.

- We are planning a 2 year follow-up, although not a RCT.

- We have in table 5 included n=72 in column for non-adherent and n=506 in column for adherent.