Author's response to reviews

Title: Suitability of measures of self-reported medication adherence for routine clinical use: A systematic review.

Authors:

Sara F Garfield (saragarfield@yahoo.co.uk)
Sarah Clifford (sarah.clifford@pharmacy.ac.uk)
Lina Eliasson (leliasson@imperial.ac.uk)
Nick Barber (n.barber@pharmacy.ac.uk)
Alan Willson (alan.willson@nliah.wales.nhs.uk)

Version: 2 Date: 29 July 2011

Author's response to reviews: see over
Dear Mr Aldcroft,

Re MS: 1290251559540329 Suitability of adherence measures for routine clinical practice: A systematic review

We thank the reviewers for their comments and feel that article has benefited from many of the changes suggested. We have underlined all additions to the text and give a point by point response below.

Reviewer 1:

Title: The title has been changed.

Abstract: The background section of the abstract has been shortened and the methods and results have been expanded. The information suggested by the reviewer has been incorporated into the methods section and the aim has been rewritten.

Background: The background has been restructured and subheadings have been added.

Methods: Explanation of some of the exclusion criteria has been added as suggested including: adherence questions only relevant to specific illnesses or medications, studies reporting questionnaires not suitable for multiple medications and studies where the adherence measure used was not reproducible. The criterion of ‘studies reporting use of an existing questionnaire with no further validity or reliability testing,’ has been clarified.

Results and discussion: The results and discussion section has been restructured into the three main aspects of the research theme and subheadings have been added. Extra detail has been added to address the balance between more detailed information and more accurate information.

General: All references to data have been changed to the plural form of the verb. The sentence on p2 paragraph 2 has been rewritten. The word ‘the’ has been added after ‘asked about’ on p. 16, par. 1.
Reviewer 2:

Tables 2 and 3 have been combined into one table. It was not possible to incorporate the information in table one due to lack of space.

As explained in the article, none of the current measures meet all the criteria for clinical practice and we feel it would be unfair to recommend specific instruments over others. Rather, the current choice will need to be made based on which criteria are deemed most important to the user. We have added a sentence to this effect.

Citations to each instrument in table 1 have been added.

We tried to take the terms ‘significant association’ and ‘no significant association’ out from table 2. However, we found this made the table difficult to read due to the range of different tests which were carried out in different studies. We have therefore attached two versions, one with the wording (which we think more reader friendly)and one without and leave the decision with the editor.

A sentence has been added to the results to provide information on the number of articles and abstracts screened.

Questionnaires which ask general questions such as ‘have you ever...’ would not be expected to demonstrate change over time. If additional instructions are added to existing instruments, this may alter their psychometric properties and they would need to be retested, so we have not included this option.

We feel the length of the introduction is necessary in order to clearly set out the ideal criteria for an adherence measure to be used in routine clinical practice. The focus of the review is to determine the extent to which current instruments meet these criteria.

Reviewer 3:

Title: The title has been changed.

Background: The article by DiMatteo includes adherence to any medically prescribed treatment or preventative measure; the figures we have used are specific to medication adherence.

Adherence has been changed to medication use.

The sentence regarding MEMS being costly has been expanded to make it clear that it is expensive relative to the costs of many primary care medications and that it is less practical for multiple drug use in primary care.

A discussion regarding the possibility of using a combination of methods to measure adherence has been added to the background.
We have given some examples of theories/models for explaining non-adherence, rather than a comprehensive list and have used the words 'such as' to indicate this. This is because only a small number of measures in the review were based on such models and a longer discussion would not be relevant.

Intentional and non intentional non-adherence are two separate psychological constructs. However, from a pragmatic point of view, the focus needs to be on having a measure which can assess adherence as a whole and then explain it. We note that no measure was identified which related only to non intentional adherence.

Cochrane defines a systematic review as ‘A review of a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review.’ We have used these methods as set out in the methods section.

Methods: We note the reviewer’s comments concerning the search strategy. Whilst ‘concordance’ and ‘persistence’ are related to adherence they relate to different concepts which are not interchangeable. It is possible that some authors may have used terminology incorrectly. We were unable to account for misuse of terminology in other papers and have added a limitations section to the discussion in which we have stated this. The term ‘assessment’ relates to a process and differs from ‘questionnaire’, ‘measure’ and ‘scale’ which are devices. We have rerun the search adding in the term ‘tool’ and no further relevant papers were identified.

The search periods have been added for each database.

The reason for excluding measures including adherence questions only relevant to specific illnesses or medications has been added to the background and methods. Further explanation of the exclusion of studies where the adherence measure used was not reproducible has been added.

There is no defined acceptable level of inter-reviewer agreement required for systematic reviews. In this review we were dealing with complex interventions, which are hard to define, so some initial differences are inevitable. During the checking process there were many discussions of the criteria and why certain papers should be included. We reached 100% agreement following discussions.

Results and Discussion: The acceptability of Cronbach alpha has been changed from >0.6 to 0.6-0.9.

We have reviewed the scale development book by DeVellis and can confirm that we have reported the various types of validity/reliability testing done by scale developers. We have excluded validation of one questionnaire against another as stated in the methods section as there is no established gold standard and it would therefore not be possible to deduce which of the two scales was the more accurate.
Extra detail has been added to address the balance between an adherence measure which provides more detailed information and an adherence measure which correlates well with an objective measure.

We have argued that a new measure is needed based on the finding of the systematic review that none of the current measures meet the criteria.

Competing interests: The references including the authors of this review relate to the background only. The authors are not included in any of the review papers.

Table 1: As stated in the results section, information about time to complete the questionnaires was only given in three cases.

Table 2: The error regarding psychotropic drug concentration of the asthma scale has been corrected.

Figure 1: A breakdown of articles retrieved from each database has been added.

General: All typing and referencing suggestions have been made.

Editor:

We have had the submitted article checked by a professional English teacher.

We have noted that the PRISMA criteria have primarily been designed for systematic reviews and meta analyses of clinical trials, therefore not all categories of the checklist are appropriate. However we have reviewed each criteria independently and have complied with them where relevant.

Yours sincerely,

Dr Sara Garfield. Postdoctoral Research Fellow, The School of Pharmacy, University of London

Professor Nick Barber. The School of Pharmacy, University of London, Visiting Professor in Patient Safety, Harvard Medical School

Dr Sarah Clifford. The School of Pharmacy, University of London

Dr Lina Eliasson. Imperial College London, University of London

Dr Alan Willson. Director of Research and Development, National Leadership and Innovation Agency for Healthcare