Reviewer's report

**Title:** U.S. Healthcare Providers' Knowledge, Attitudes, and Beliefs Concerning Chronic Fatigue Syndrome

**Version:** 1  **Date:** 2 January 2010

**Reviewer:** Anthony L Komaroff

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This is the first substantial attempt to survey the knowledge, attitudes and beliefs (KAB) of U.S. health professionals about chronic fatigue syndrome (CFS). Such a survey is important, because it can give focus to the kind of continuing medical education required to educate clinicians about this important illness. However, the current manuscript contains important methodologic limitations, uses statistical techniques that render the results opaque, and is poorly written.

**MAJOR COMPULSORY REVISIONS**

1. In the Discussion, the authors recognize the considerable limitations imposed by using a “convenience” non-probability sample of survey respondents. However, they feel the data are worth reporting, despite these limitations. I disagree. It is true that this sample provides information about non-physician health professionals, which the probability sample does not. However, given that it is impossible to know how representative the sample is of the KAB of non-physician health professionals, I don’t think reporting these data is of value.

2. As I see it, the main results of this study are the range of responses to each question. For example, respondents in the non-probability sample were asked to respond to the statement “CFS is not as big a problem as the media suggests” on a Likert scale ranging from 1-7. The main result that the reader wants to know is what the range of responses was. That is nowhere to be found, for any of the nine questions KAB questions on the non-probability sample survey.

3. In contrast, what is found (Table 2) is the result of a principal components analysis (PCA). PCA (and similar statistical techniques) is ideal for empirically determining patterns and groupings in data, for “letting the data speak for themselves”, particularly when there are a large number of data elements. Why is PCA necessary here? The investigators created a small number of questions to pose to survey respondents, and had already grouped them into categories in advance of collecting the data. They didn’t need PCA to create such groupings. If the purpose of PCA is to “assess the reliability and construct validity of the survey” [p. 17], they need to explain in the Methods how PCA does this, and report the result of such validation only after having first reported the main results (Comment 2, above).

4. Similarly, ALL the actual results of the respondents in the probability (DocStyles) sample need to be reported in a TABLE—rather than having SOME
Moreover, tables are needed to highlight interesting examples of how one question was answered by doctors who answered a second question in a different way. For example, 41% of the doctors had made the diagnosis of CFS in at least one patient, and 20% agreed that “CFS is all in a patient’s head”. How many of those who felt “CFS is all in a patient’s head” had (nevertheless) made the diagnosis of CFS in a patient—and how many doctors who did not think CFS was “all in a patient’s head” had given a diagnosis of CFS?

5. It is unclear how various characteristics of doctors in the DocStyle sample were determined. Was this determined by the Epocrates database collectors, or by questions on this survey? How were these characteristics defined? In the Results and Discussion, some of the descriptors are treated as being mutually exclusive with others. For example, the answers of doctors “in private practice” are distinguished from those in “community settings”: however, most private practices are in community settings. Likewise, the answers of doctors in “hospitals” are distinguished from those in “academic settings”: however, most doctors practicing in “academic settings” do so in a teaching “hospital”. Considerable clarification of these categories is required, for the reporting of the results to be interpretable.

6. The otherwise excellent probability (DocStyles) sample was marred by the fact that data from 15% of the sample was lost due to a data storage error. It is incumbent on the authors to reassure the reader that bias was not introduced as a consequence of this loss. Based on the descriptors of the doctors that were available, were the doctors whose data was lost different in any respect from the doctors whose data remained in the sample?

7. Lastly, the manuscript is replete with grammatical and spelling errors. Particularly since BMC Family Practice does not edit manuscripts, it is the responsibility of the four authors to correct these errors. There also are many unclear statements. For example, at the top of page 7 we find this language: “In exchange for a USB stick….conference attendees were asked to fill out an anonymous, one-page 12-item CFS KAB form….Conference attendees were not required to fill out the KAB form in exchange for a USB stick.” This language appears contradictory, unless the authors mean: “In exchange for a USB stick….conference attendees were asked, but not required, to fill out an anonymous, one-page 12-item CFS KAB form.”

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

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