

## Reviewer's report

**Title:** Sleep Assessment in a Population-Based Study of Chronic Fatigue Syndrome

**Version:** 1 **Date:** 5 December 2003

**Reviewer:** Olivier Le Bon

### Reviewer's report:

General

Discretionary Revisions (which the author can choose to ignore)

none

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

General comments:

The paper by Unger et al. explores the relationships between six categories of subjects with fatigue (from Never Fatigued to full Chronic Fatigue Syndrome (CDC criteria) two years in a row) and sleep and general health assessments by questionnaires. Its aim was to help disentangle the complex issue of sleep and CFS, where sleep abnormalities may at times be both a defining criteria and an exclusionary diagnosis. This, as underlined by the authors, introduces confusion into CFS diagnosis, management and research. A better understanding of the relationships between CFS and sleep is crucial to the management of fatigue and to the notion of CFS itself, a putative syndrome which still generates much debate. From a more general point of view, the distinction between Excessive Daytime Sleepiness and Fatigue is also of primary importance in the debate on sleep regulation and functions.

The sample originates from a very large population ( $n > 50.000$ ) and selection was performed first on basis of telephone interviews, second on detailed clinical interviews for the diagnostic of several categories of fatigue. Sleep Assessment Questionnaire (SAQ), Epworth Sleepiness Scale (ESS), Fatigue Assessment Instrument (FAI) scale, a linear Wellness scale and a series of physical characteristics were measured in practically all 339 subjects.

The collection of data seem sound and well controlled, and the paper provides an adequate description of selection and attrition.

The major results are those from the SAQ, for which this report constitutes the first published exploration. The large majority of the study subjects showed at least one abnormal score on the scale and the subjects with at least one abnormal sleep factor had clinically and statistically lower Wellness scores. Interestingly, fatigued subjects did not show important odd-ratios for EDS. SAQ Non-Restorative Sleep and Restlessness scales were strongly associated with CFS. Overall, the study underlines that, although fatigued, CFS subjects are not sleepy. For its prediction of primary sleep disorders, the SAQ is shown to be useful in epidemiological studies.

There is not much to criticize in this well-designed and interesting epidemiological study. It confirms

previous findings using different methodologies that EDS and fatigue should probably be regarded as two distinct dimensions of sleep, perhaps as two distinct consequences of different sleep disorders. Distinguishing primary sleep disorders from CFS is also clinically useful, as the first can often be efficiently treated, whereas the second usually constitutes a challenge for the clinicians. The distinction between fatigue and EDS deserves to be made even if patients and caretakers often confuse both, and although both can be found in variable proportions in several sleep disorders.

The study supports the use of SAQ, a relatively recent test that has not yet been extensively tested, as a heuristic tool in epidemiological sleep studies. Correlations between SAQ and polysomnograms and/or MSLT will test how reliable the questionnaire is in its ability to detect sleep disorders.

#### Abstract:

to avoid confusion about the number of factors, I would indicate "five of the six factors" or indicate why sleep schedules were not tested.

#### Introduction:

I would not put on the same level polysomnograms and MSLT (p. 6 L.4 and ss). Although MSLT have been demonstrated to be useful - and they may be in the present case - they have not been very well correlated with other sleepiness measures so far and they are far less used than PSG in formal sleep studies.

Although it is not formerly wrong, the sentence on L.1, P. 7 may be understood as this study being the first to accurately describe CFS and could be rewritten.

#### Methods:

Sleep questionnaires: p.9 It would be important to stress that the SAQ was not factor-analyzed based on the same population than the one studied here.

P. 10 L. 6: I would split the sentence in two, to keep the same structure for all scores.

The Wellness and the Fatigue scales are introduced in the statistical section, while they belong to the Methods and are referred to in the Abstract only in the Results part. They should either be removed completely from the text or more clearly supported.

It would be useful to stress in the Methods section that the 1994 CDC criteria exclude some but not all psychiatric conditions. As space is not limited here, perhaps an option would be to reproduce the selection criteria as an appendix, for the reader who is not familiar with them. For the same reasons, it would be interesting to have as appendix the items of the SAQ if they are not protected by copyright.

Stat section: you should precise distribution data and explain why and where you use a combination of parametric and non-parametric analyses (for KW mostly).

#### Results:

see above remark on CDC criteria and psychiatric diagnoses and integrate it with exclusionary

psychiatric diagnoses (end of first par.)

Precise where you used parametric and non-parametric tests.

Discussion:

I don't think you need to apologize or consider a limitation the fact that you don't have PSG, as it is your study design. PSG will consolidate, confirm (or not) the validity of the scale, but these are extensions, not limitations. I don't understand the forelast sentence (did you or did you not control for medications ?) I think the real limitation is that the SAQ, although seemingly promising, has not been validated extensively so far.

Typos:

142 to560 (P.5 - L. 2)

curent (P.5 - L.4)

narcopletic (P. 10 - L -2)

c. major compulsoray revisions (aiuthor must respond before decision to publish is final)

none

**What next?:** Accept after minor essential revisions

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No

**Declaration of competing interests:**

none