Author's response to reviews

Title: Insomnia in school-age children with Asperger syndrome or high-functioning autism.

Authors:

Hiie Allik (Hiie.Allik@ki.se)
Jan-Olov Larsson (Jan-Olov.Larsson@ki.se)
Hans Smedje (Hans.Smedje@akademiska.se)

Version: 4 Date: 28 February 2006

Author's response to reviews: see over
Dear Editorial Team,

Please find enclosed a copy of a revised version of the manuscript titled *Insomnia in school-age children with Asperger syndrome or high-functioning autism* by Hiie Allik, Jan-Olov Larsson, and Hans Smedje.

The comments made by the three reviewers were very helpful and constructive and we have attempted to modify the whole manuscript according to their suggestions.

I would be grateful if you could consider whether the manuscript is acceptable for publication in the BMC Psychiatry.

Yours sincerely,

Hiie Allik
Department of Woman and Child Health, Karolinska Institutet
Child and Adolescent Psychiatric Unit
Astrid Lindgren Children’s Hospital, Q3:04
SE- 171 76 Stockholm, Sweden
Phone: +468 517 772 07. Fax: +468 517 772 14
Our point-by-point response to the reviewers:

**Reviewer: Pekka Tani**

Measures: I, as an adult psychiatrist, wonder how old a child has to be before one can ask him/her to fill in questionnaires concerning sleep quality. Otherwise the method for defining insomnia seems sound and valid.

We are aware of the importance of self-report assessment while exploring children’s sleep. Previous research has recommended a complementary approach while evaluating school-age children’s sleep, i.e. using self-report as well as parent-report assessment (Paavonen et al 2000). The paediatric sleep questionnaire, utilized in the current study, has not been previously used as a self-report questionnaire. We assert the lack of self-report as a limitation of our study in the Discussion, and will attempt to use self-report assessment in future studies.

**Definition and assessment of insomnia (page 9): study results should not be given here, they are shown in Results- section.**

In the revised version of the manuscript, the subsection “Assessment of insomnia” has been repositioned under the Results.

**Recent sleep measures (page 11): were the actigraphic sleep parameters averaged for each subject and then grouped together for statistical comparison? This is the standard procedure.**

The actigraphic variables were averaged for each child, the issue has been clarified in the subsection “Recent sleep patterns,” the Methods section.

**Statistical analysis (page 12): why is it necessary to control the actigraphic analysis for age of the child in logistic regression? What is meant by the "set of actigraph"?**
The actigraphic analysis was controlled for the age of child since the existing research has reported statistically significant age differences in actigraphic variables in school-age children (Sadeh et al 2000).

Under the term “set of actigraph” we mean that four different devices of actigraphs were used in the current study. While comparing actigraphic measures, we also controlled for the set of actigraph since the previous research (Sadeh et al 1994) as well as our own observations have shown some variability in actigraph device sensitivity.

Discussion is good indeed, especially the chapter "Previous research has pointed to a need..." One could discuss the limitations of actigraphic assessment, however, although in this study the sleep diary information coincided well with the actigraphic one.

In our view, actigraphic assessment can be regarded as a strength as well as a limitation of our study. The limitations of actigraphy have now been addressed in the last paragraph of the section Discussion.

Reviewer: Luci Wiggs

Page 7 - Assessment of inclusion and exclusion criteria (eg. diagnosis of AS, intellectual disability, seizure disorder) need to be explained more. Although references are provided about the reassessment of the children’s AS, these references are ‘in press’ so one can’t judge this procedure and neither is it clear which diagnostic reassessment tool (if any) was used.

The inclusion and exclusion criteria and the diagnostic reassessment of children in the AS/HFA group have now been clarified in the subsection “Subjects,” under Methods.

Page 7 – control group – more information about ‘how’ the control group were recruited would be helpful. Presumably, if they were individually matched with a child
in the AS group, school nurses were asked to suggest a child of a particular age and sex who fulfilled the other inclusion/exclusion criteria... how did they decide which child (of the many who might be suitable? Randomly, next name on register, friend of AS child (I am assuming that the AS child was probably at the same school, is that right?) Some more detail would be helpful.

The recruitment procedure of the controls has been clarified in more detail in the last paragraph under subsection “Subjects.”

The study involved the use of many statistical tests, such that probability of Type I errors is increased...A comment about how the authors dealt with this would be helpful.

This limitation has now been addressed in the last paragraph in the Discussion. However, despite this limitation, we believe that our results are in line with relevant hypotheses in the area, thus reducing the risk of false positive findings.

Page 16, first para - As there are many approaches to the treatment of paediatric insomnia I would state this explicitly and give a reference and clarify that the one that the authors are describing (bedtime fading) is one which may be particularly appropriate for the treatment of children with a delayed sleep onset. Further, I think that at the end of that paragraph the final sentence should be extended to explain how their results (that children with and without insomnia had similar bedtimes) support the idea that the children can’t fall asleep (rather than they are being put to bed too early).

The paragraph has been modified according to the suggestions.

Page 8 – the third paragraph should go in the Results section and ‘other sociodemographic variables’ which were examined should be explicitly stated.

The subsection “Sociodemographic data,” including the clarification of variables, and information with regard to school situation of children, has been moved to the Results section. New information regarding the statistical tests used for comparisons of sociodemographic data has been added to the subsection “Statistical analysis” in the Methods section.
Page 9 – Table 2 is referred to for the first time in the first paragraph and Table 1 for the first time in the second paragraph. As such, these tables should be re-named so that the first one mentioned is table 1.

Tables 1 and 2 are renamed according to this suggestion.

Page 9/page 10 – Giving the number of children with AS and controls who fulfil criteria for paediatric insomnia should go in the Results section. The definition should be explained here in the methods section but the numbers not given here on pages 9 and 10.

The subsection “Assessment of insomnia” has been moved to the Results section.

Page 10 – It reads strangely to say ‘We decided that none of these coexisting sleep-wake behaviours etc…’. The basis of that decision needs explanation

Other coexisting sleep-wake behaviours have now been presented and compared between children with and those without insomnia in the AS/HFA group, in a separate subsection in the Results section. To the best of our judgment, none of these coexisting sleep-wake behaviours are likely to be exclusively responsible for the severity of sleep initiation and maintenance problems in 10 children with insomnia. Moreover, in the Discussion, we now also acknowledge the lack of PSG assessment, the gold standard for ruling out other sleep disorders, as a limitation of our study.

Page 13 – as detailed above mention of results being presented ‘in the Methods section’ should be removed and these results repositioned in the paper.

The results are repositioned according to the suggestion.

Page 13 – there seems to be something funny and inconsistent about the use of headings/subheadings here: The paragraph currently underneath ‘Comparison between children with and without insomnia in the AS/HFA group’ should be moved to the preceding section (and expanded with reference to the Table, as described) since this
deals with differences between the AS/HFA group and controls. Then, under the heading ‘Comparison between children with and without insomnia in the AS/HFA group’ would be reports of the actigraphy and behaviour of the insomniacs/non-insomniacs. It would be interesting to see if other sleep behaviours (described in the questionnaire) differed between those with and without insomnia (this would form another section); although, by definition the insomnia group shouldn’t include children with ‘other sleep disorders’ it seems that the authors did include children with some frequent sleep behaviours (eg. snoring) and, as such, a description of these other behaviours, by group, would be interesting.

The heading “Comparisons between children with and without insomnia in the AS/HFA group” has been repositioned according to the suggestion.

We agree with the suggestion concerning the description of other sleep-wake behaviours in children with and in those without insomnia, and present this data under subsection “Comparisons between children with and without insomnia in the AS/HFA group.”

Page 14 – To save readers having to refer back to the methods section it would be helpful (and appropriate, to put the significant results in context) to remind readers of all the actigraphy variables which were examined but which were non-significant (eg. just a line to say ‘ X, X and X showed no significant difference between the two groups’)

The description of the actigraphic variables which did not differ has been added to the Results.

Discretionary Revisions (which the author can choose to ignore)

Pg 5 - The background is somewhat ‘list-like’ to read and some of the results (eg. those of Polimeni, Richdale and Francis) do not correspond with the authors’ conclusions that insomnia is more common in children with autism spectrum disorders so perhaps their conclusions about this should be tempered to say that some studies have found insomnia to be particularly common.
The conclusion has been reformulated according to the suggestion.

**Page 7 (and elsewhere)** I would consider changing the word ‘ongoing’ medication because this sounds like children taking medication for a short period (ie. not ongoing but for a finite period) could be included and, of course, this is not the case (I think!)

The word “ongoing” has been changed.

**Page 10 – line 6 – insert ‘children’ after the number ‘4’**.

We have reformulated the whole sentence while comparing sleep-wake behaviours between children with and those without insomnia in the Results section.

**Page 11, Behavioural Characteristics, line 3 – the words ‘items covering’ should be inserted after the numbers 6 and 5**

The corrections have been made.

**Pg 13, line 1 – delete ‘the’ before SPSS**

This has been corrected.

**Pg 15, line 5, I would delete the word ‘Obviously’ and replace with ‘The results of our study could not confirm these findings’**

The sentence has been modified according to the suggestion.

**Reviewer: Daniel G Glaze**

The suggestions that follow I believe do not represent a major revision but for the reader clarify and provide the ability to reproduce and/or to proposed further studies.
1. Indicate whether the sleep questionnaire has been validated and why this questionnaire, other than for convenience because of language considerations, is used rather than other validated questionnaires such as the Child Sleep Habits Questionnaire developed by Dr. Judith Owens;

The Swedish parental sleep questionnaire, used in the current study, has previously been utilized in epidemiological studies of Swedish children, and shown satisfactory usefulness and test-retest reliability (Smedje et al 1999, 2001). An English version of the questionnaire is now presented in Additional file 1.

2. Indicate the specific test used to determine normal intelligence in the subjects and controls—did the controls undergo IQ testing and screen for autism characteristics and whether the two groups were similar for level of intelligence by objective measures;

The level of intelligence of children with AS/HFA was measured at the time of the first clinical assessment, on average 40 months before the current study. All of these 32 children in the AS/HFA group were of normal intelligence. The 32 controls were not IQ tested, however all of these children attended the mainstream schools, and showed satisfactory school performance. The information concerning the issue of intelligence has been added to the Method section, subsection “Subjects.”

Autism-related symptoms in the subjects and the controls were screened for by using the High-Functioning Autism Spectrum Questionnaire. This issue has been clarified in the subsection “Behavioural characteristics,” under the Methods.

3. For Table 2 include the specific questions asked in the sleep questionnaires, this information will be helpful for those wishing to use the questionnaire and for whom the cited reference is not readily available—or whether they can obtain the questionnaire and scoring design from the authors;

Since the order of presentation of tables has changed, Table 2 has been renamed Table 1. Specific questions included in Table 1, are presented in Additional file 1.
4. Discuss, given the small size and many variables, the possibility of false positives;
   This limitation has now been addressed in the last paragraph in the Discussion. However, despite this limitation, we believe that our results are in line with relevant hypotheses in this area, thus reducing the risk of false positive findings.

5. Include the p values, as was done elsewhere, in the final section under results--insomnia and behaviour.
   P values have been included in the subsection “Insomnia and behavioural characteristics” under Results, according to the Table 3.

References