Reviewer's report

Title: The Effects of Irregular Bedtime on Sleep Quality, Daytime Sleepiness, and Fatigue in University Students in Taiwan

Version: 1 Date: 31 March 2009

Reviewer: Tonya M Palermo

Reviewer's report:

Thank you for the opportunity to review this manuscript examining the relationship between irregular bedtime and sleep duration, sleep quality, daytime sleepiness, and fatigue in Taiwanese college students. There were several strengths of the study including the focus on an important topic, inclusion of a narrow and specific age range of students, and the use of well-established and well-validated measures such as the PSQI and the ESS. I did, however, have a number of concerns about methodology and analysis that need attention. These are listed out below by major compulsory revisions, minor essential revisions, and discretionary revisions.

Major Compulsory Revisions

1. The stated purpose of the study is “to explore epidemiological data about the FIB and sleep quality in Chinese undergraduate students…”. The sample is much too small to provide epidemiological data and therefore this purpose requires some retooling to better reflect the knowledge that can be obtained from this small local sample.

2. Irregular bedtime should be clearly defined in the introduction, so that the methods for assessing this variable are understood in the methods. For example, is a 1 hour shift considered in the literature as a meaningful variation in bedtime? References are needed to support the definition.

3. Increased detail is needed concerning each of the measures used in the study. The specific items, response options, and any psychometric properties should be described for each. This is particularly problematic in making sense of the variables used for irregular sleep time and for average daily sleep time where there is little information provided. The criteria for frequency of variable bedtime being “shifting bedtime more than 1 hour from their usual bedtime” needs justification. Why was 1 hour chosen? How was sleep time estimated by subjects and was this done separately for weekday vs. weekend schedule?

4. My main concern with the analysis and interpretation of the results is that there is potential overlap between the predictor variables and the outcome variable the PSQI global score. The PSQI contains items measuring regularity of schedule and sleep duration, therefore there is less independence between predictor and outcome than is ideal.
5. Similar to my comment above, it is unclear how the analysis of low, intermediate, and high average daily sleep time by PSQI score produces new information. Because the PSQI contains information on sleep duration and this contributes to the global sleep quality score, an individual would obtain a worse sleep quality score on the PSQI by definition when their sleep duration is shorter. This interdependence among measures creates problems with interpretation of findings.

Minor Essential Revisions

6. There are many non-standard acronyms used (e.g., IB, FIB, ADST) and they are confusing to the reader. I would recommend writing out the full labels unless it is a well-established name (e.g. PSQI).

7. The grammar is confusing throughout the manuscript and decreases clarity. It would be useful to have an individual who has English as their native language go through the entire manuscript to address language and translation issues.

8. Assuming that there is likely a high level of dependency among the sleep variables, it may be more appropriate to perform MANOVA analysis rather than the 5 separate univariate ANOVAs.

9. I would suggest removing Figure 1 as I don’t believe it produces any new information.

10. It would be useful to see the correlations among the sleep variables in a table to get a better sense of the relationship among these constructs and to better understand the potential dependency among them.

11. Table 2 contains several notes that are contradictory including that values are given as number (%) and that all variables are expressed as mean (SD). Please clarify.

Discretionary Revisions

12. There are inconsistencies in the reporting of findings where some results are given in minutes and some in hours; it would be useful to have them on the same metric.

13. Table 1: if as stated there were no gender differences, it seems unnecessary to separate these data by gender.

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

Quality of written English: Not suitable for publication unless extensively edited

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.