Reviewer's report

**Title:** Interaction of sleep quality and psychosocial stress on obesity in African Americans: the Cardiovascular Health Epidemiology Study (CHES)

**Version:** 1 **Date:** 11 June 2010

**Reviewer:** Bernardo Carpiniello

**Reviewer's report:**

- Major Compulsory Revisions

1. Background-Methods

1.1 The Authors fundamentally consider the hypothesis that poor quality sleep and psychosocial stress may be synergic in increasing the risk of obesity; thus, in their study, they consider sleep quality and perceived stress as independent variables and BMI as the dependent one. The hypothesis that obesity may influence both sleep quantity and/or quality and perceived stress was ignored and not explored by authors.

1.2 Moreover, the authors do not consider and consequently do not examine in their study the possible role of emotional disorder (in particular depression) as a mediating variable linking sleep disorder, perceived stress and obesity, taking into account the well established relationships of depression with obesity, sleep disorders and stress.

2. Discussion

2.1 The Authors state that “our investigation, similarly with studies such as CARDIA and Whitehall II that consider sleep duration, found no association between sleep quality as a continuous score and obesity...”. In our opinion, this statement is somewhat confusing, given that sleep duration is a very different parameter from sleep quality.

2.2 The Authors consider that “when sleep quality global score is considered continuous, we found an interaction between sleep quality and stress, especially in the middle stress tertile. This association was not present when using the defined PSQI categories”. Unfortunately they don’t comment further these data, attempting to explain in some way these puzzling evidences.

2.3 In commenting the opposite data regarding the obesity risk according to level of stress (poor sleep versus sleep disorder), The A. suggest that “the fact that sleep disorder versus healthy sleep had an opposite slope of the association with obesity in terms of interaction with stress when compared with poor sleep versus healthy sleep suggest that the sleep disorder category might be a pathologic condition that is produced by a different sleep disturbance mechanisms”. What this means? Which is the different mechanism supposed by the authors?

2.4 The study found that only two Pittsburg Questionnaire components, namely sleep latency and daytime dysfunction, were interacting with perceived stress on
obesity, whereas the global quality score was not. As a consequence they conclude that “an issue of sensitivity of the questionnaire and/or an issue of calibration of its subdomains” is raised by these results. Why the A. exclude the possibility that results may be true and not an expression of limitations of the instrument?

2.5 The authors acknowledge some limitations of the study, such as the limited physical activity assessment and the marked prevalence of females in their sample, but fail to recognize other limitations, such as the fact that BMI, and sleep quality are based only on self-report measures.

2.6 In their final consideration the A. state that “poor sleep quality was associated with BMI and the association of sleep quality with obesity was positively modulated by perceived stress”, which is a somewhat surprising conclusion, taking into account that they state just few lines above that “is premature to suggest that sleep is a cause or solution to the obesity epidemic in absence of more sensitive sleep quality assessment tool”, a sentence that sounds as a criticism to studies based upon instruments such as the Pittsburg Questionnaire, included their own study.

-Minor Essential Revisions

None

- Discretionary Revisions

1. Discussion

The A. say that “noteworthy was the association of both physical activity and smoking with sleep quality..”, but don’t deserve any comment to the significant association they found between female gender, history of MI, and sleep quality, which in our opinion are worth to be considered

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

**Quality of written English:** Acceptable

**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'