Author's response to reviews

Title: Physical Activity and Sleep Profiles in Finnish Men and Women

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Author's response to reviews: see over
Responses to editor’s comments.

- Abstract: The sentence "It is unclear to what extent sleep modifies the effects of PA on health, and vice versa" is misleading, since the association between sleep and physical activity on health was not analyzed in this study. Please, modify.

Response: We have now addressed this point by revising the sentence as follows: “It is also unclear to what extent sleep affects peoples’ PA levels and patterns.”

- Abbreviation CPA has not been spelled out.

Response: Thank you, this had been forgotten in the earlier version. The abbreviation has now been spelled out in the text. (see Background, last paragraph)

Responses to reviewer.

Major Compulsory Revisions (in order of importance):
- Thank you for adding the years of education as an indicator for SES. In the last sentence of the results you state “They were no statistically significant differences in education years between profiles 1 and 3, neither in men nor in women”. Why did you only compare profiles 1 and 3? The year of education in profiles 2 and 4 appear to be lower than in profiles 1 and 3; please address. Do you think that the lower years of education in profiles 2 and 4 could have influenced results?

Response: This incoherence has now been corrected and the following has been added to the text: “In both men and women the mean educational years were significantly higher in profiles 1 and 3 compared to profiles 2 and 4. However, there was no statistically significant difference in educational years between profiles 1 and 3 or profiles 2 and 4, neither in men nor in women.” Regarding your question whether education could have influenced our results, we think that education most likely has a role in determining people’s PA and sleep. Educational level has been shown to associate with health behavior and even morbidity and mortality. Nevertheless, we wanted to create the profiles based on the behaviors themselves, not concentrating on the determinants, such as age and education. Thus we acknowledge the fact that education may have a role as an important determinant behind the profiles.

Minor Essential Revisions:
- Please also add statistics for age differences in the profiles.

Response: This has now been added to the text: “The mean age differed significantly between all profiles in men. Profile 2 was the oldest and profile 3 the youngest. In women, profile 2 was significantly older than the other profiles and profile 4 was significantly older than profiles 1 and 3 but there was no significant difference between the two youngest profiles 1 and 3.”

Discretionary Revisions:
- It would add to the paper if you could report the cut-off values that you used for education in Table 2 (e.g. “Low (<10.1 years)”).
Response: We have now added to table 2 the overall and educational thirds specific means of educational years (± SD) for men and women. (See Table 2).