Author's response to reviews

**Title:** Obstructive sleep apnea and multimorbidity

**Authors:**

Laurence Robichaud-Hallé (Laurence.Robichaud-Halle@USherbrooke.ca)
Michel Beaudry (michel.beaudry@videotron.ca)
Martin Fortin (Martin.Fortin@USherbrooke.ca)

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**Author's response to reviews:** see over
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The BioMed Central Editorial Team

Dear Editor,

Please find in the following page our answer to the reviewer for the comments made to our manuscript, “MS: 1841744401698949 - Obstructive sleep apnea and multimorbidity” submitted to BMC Pulmonary Medicine. We were able to address the single comment and adjusted the manuscript accordingly.

Should you have any questions, please do not hesitate to contact me as corresponding author for this paper. We look forward to hearing from you.

Martin Fortin MD MSc CFPC
Professor
Department of family medicine, Université de Sherbrooke
CIHR Applied Research Chair – Health Services and Policy Research on Chronic Diseases in Primary Care / CIHR-IHSPR, CHSRF, CSSSC
Tel: 418-541-1234 ext 2281
Fax: 418-541-7091
martin.fortin@usherbrooke.ca
**Author’s response to Referee 2: Kazuo Chin**

**COMMENT:**

I understand why the authors used non-parametric tests for the association between DBMA and the severity of OSA. However, I still could not quite understand why the authors performed such bivariate analyses (absent and mild OSA vs moderate and severe OSA) in Table 3. Indeed, in Tables 4 and 5, the odds ratios were calculated as each of mild, moderate and severe OSA vs non OSA group (reference).

**RESPONSE:**

The statistical analyses section of our methods has been rewritten to reflect this comment. The sentence now reads: “A Kolmogorov-Smirnoff test was performed to test for normality of the distributions. In the absence of normality, non-parametric tests were conducted. Bivariate (Spearman rank) correlations were conducted. We dichotomized the AHI by grouping together absent and mild as well as moderate and severe to ensure sufficient size of each group. We performed logistic regression analyses to study the relationship between multimorbidity and OSA.”

We did not dichotomize the AHI when performing the regression analysis (Tables 4 and 5) because we were looking for the progressive effect.