

Reviewer Comments:

This manuscript addresses a major public health problem, COPD, and an attempt to improve outcomes in patients receiving pulmonary rehabilitation therapy.

Comment 1. The first major concern is that of a selection bias as the control group has statistically significant poorer lung functions (FEV1, FVC & IVC). This is unfortunate as the authors adopted a good approach with the selection of their controls, but clearly did not meet the matching criteria of one of the pre-identified matching criteria, i.e. respiratory function. It is uncertain if pulmonary rehabilitation has similar effects in patients with poorer lung function.

Reply 1. Thank you so much for the Reviewer's comment, yes the members of the control group had significantly weaker lung function, however, the effect of interval training with non-invasive ventilation is visible and convincing, and this disadvantage is mentioned in the manuscript as a limitation.

Changes in the text: Line 320.

Comment 2. Another limitation is that the study was unblinded, both in terms of the intervention period (performance bias) as well as with the assessment of outcomes (outcome bias). This was probably difficult to avoid due to the nature of the intervention, i.e. NIV (BiPAP). Blinding was however achieved in the article referenced below using nasal prong oxygen. Alison JA, McKeough ZJ, Leung RWM, et al. Oxygen compared to air during exercise training in COPD with exercise-induced desaturation. *Eur Respir J* 2019; 53: 1802429 [<https://doi.org/10.1183/13993003.02429-2018>].

Reply 2. Thank you so much for the Reviewer's comment, yes the conditions for blindness could not be fulfilled due to the full-face mask, however, the results are convincing and this limitation was also described in the manuscript.

Changes in the text: Line 324.

Comment 3. There is, no clear description of how the cases were selected.

Reply 3. Thank you so much for the Reviewer's work, and comment, patients with severe COPD in the pulmonary rehabilitation department were included in the research, and inclusion and exclusion criteria were described in the manuscript.

Changes in the text: Line 108.

Comment 4. It is not clear if all patients completed the program, i.e. not certain if there were any patients lost to follow up or drop outs.

Reply 4. Thank you very much for the Reviewer's comment, all participants completed the program, there was no dropout as we described it in the manuscript.

Changes in the text: Line 328.

Comment 5. It is not outlined in the Methods section of who performed the rehabilitation program and if the same researchers were used to evaluate outcomes, as well as their level of training.

Reply 5. Thank you very much for the Reviewer's comment, the complex pulmonary rehabilitation took place under the guidance of a pulmonologist, and in addition, physiotherapists, psychologists, dieticians and respiratory nurses were also involved in the complex program. The measurements in the case and control group were performed by a physiotherapist under specialist supervision before and after rehabilitation as we described it in the manuscript.

Changes in the text: Line 129.

Minor concerns

Comment 1. It is suggested that this paper requires a language review. Examples:

LINE 77 – Endurance training improves (not improve)

Reply 1: Thank you very much for the Reviewer's comment, we have corrected it in the manuscript.

Changes in the text: Line 74.

Line 82 monitored by oxygen saturation (add oxygen)

Reply: Thank you very much for the Reviewer's comment, we have corrected it in the manuscript.

Changes in the text: Line 79.

Line 81: Replace “individualized” with “individualised”

Reply: Thank you very much for the Reviewer's comment, we have corrected it in the manuscript.

Changes in the text: Line 78.

Line 150.. while the control group

Reply: Thank you very much for the Reviewer's comment, we have corrected it in the manuscript.

Changes in the text: Line 149.

Comment 2. Lines 134: Reference made to the fact that all participants were motivated which is appears to be subjective comment. If not determined objectively, then delete this sentence.

Reply 2: Thank you so much for the Reviewer's work and comment, we have deleted this sentence.

Comment 3. Do not use the symbol “%” in the body of the article, but rather refer to “percent or percentage”.

Reply 3: Thank you very much for the Reviewer's comments, we have corrected them everywhere in the manuscript.

Comment 4. Lung function: (lines 155-162) Need to indicate which reference values were used to calculate percentage. Generally, GLI reference values preferred as well as reports of individual lung function measures to be reported as z-scores.

Reply 4: Thank you very much for the Reviewer's comment, we have corrected this sentence in the manuscript.

Changes in the text: Line 160.

Comment 5. Lines 173-172: Probably no need to indicate how BMI determined as it is a routine and well accepted measurement. Could refer to routine anthropometric measures were reported including weight, height and BMI.

Reply 5: Thank you very much for the Reviewer's comment, we deleted the sentence from the manuscript.

Comment 6. Line 184-185: Original sentence: To assess quality of life, we used the COPD Assessment test (CAT test) as a complex questionnaire of quality of life. Suggest simpler construction of sentence: We used the COPD Assessment test (CAT test) as a quality of life measurement (or tool).

Reply 6: Thank you very much for the Reviewer's comment, we have corrected this sentence in the manuscript.

Changes in the text: Line 179.

Comment 7. Line 185: the patients responded to eight questions.

Reply 7: Thank you very much for the Reviewer's comment, we have corrected the manuscript.

Changes in the text: Line. 180.

Comment 8. Line 191: We evaluate subjectively the degree.

Reply 8: Thank you very much for the Reviewer's work and comment we have corrected it in the manuscript.

Changes in the text: Line 185.

Suggest: The degree of dyspnoea was evaluated.

Reply: Thank you very much for the Reviewer's comment, we have corrected the manuscript.

Changes in the text: Line 189.

Comment 9. Line 195-196: the difference indicates

Reply 9. Thank you very much for the Reviewer's work, we have corrected the manuscript.

Changes in the text: Line 189.

Comment 10. Line 199-203: Not certain if good normal values exist for MIP performed with mobile device.

Reply 10: Thank you very much for the Reviewer's comment, we have corrected the manuscript.

Changes in the text: Line 192-195.

Comment 11. Lines 236-7: patient's load capacity improved also significantly Correction: patient's load capacity also improved significantly.

Reply 11: Thank you very much for the Reviewer's comment, we have corrected the manuscript.

Changes in the text: Line 224.

Comment 12. Duplication of all results of Tables 1 and 2 were repeated in the manuscript. Probably best to highlight certain aspects of the results rather than duplicating all the information.

Reply 12: Thank you very much for the Reviewer's work, we have corrected the manuscript.

Changes in the text: we removed the numbers from the results.

Comment 13. Lines 262: Not to use '+' symbol but rather the word "and".

Reply 13: Thank you very much for the Reviewer's comment, we corrected it in the manuscript.

Changes in the text: Line 240.

Comment 14. Line 264: improved significantly the patient's. Suggestion: significantly improved the patient's.

Reply 14: Thank you very much for the Reviewer's comment, we corrected this sentence in the manuscript.

Changes in the text: Line 242.

Comment 15. Line 285. and increase slowly the load. Suggest.. and slowly increase the load...

Reply 15: Thank you very much for the Reviewer's comment, we corrected the manuscript.

Changes in the text: Line 263.

Comment 16. Lines 296-298: Sentence needs correction.

Reply 16: Thank you so much for the Reviewer's comment, we corrected this sentence in the manuscript.