Author’s response to reviews

Title: How stable is lung function in patients with stable chronic obstructive pulmonary disease when monitored using a telehealth system? A longitudinal and home-based study

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Author’s response to reviews:

Letter to Editor:

Thank you for considering our paper, MIDM-D-19-00549, entitled “How stable is lung function in patients with stable chronic obstructive pulmonary disease when monitored using a telehealth system? A Longitudinal and home-based study” for publication in your journal.

We received valuable comments from reviewers which we believe improved the understanding of our results. We have addressed all points below as well as in "Reply to reviewer". We submit a revised manuscript (“Manuscript with changes MIDM-D-19-00549”). According to a suggestion from the second reviewer we have added supplementary material in which we describe the method for lung function measurements more thoroughly (“Supplementary material MIDM-D-19-00549”).

Please do not hesitate to contact me if I can provide any additional information or materials.

Best regards, Professor Karin Wadell

Reply to reviewers:
Jamileh Farokhzadian (Reviewer 1): Thank you for inviting me to review this paper. This paper reports an important issue in patients with COPD. There are however some revisions that needs clarification.

Reply: Thank you for your comments. We believe that your suggestions have improved the paper.

Title: I suggested that title: How stable is patient with chronic obstructive pulmonary disease by telehealth systems? A Longitudinal and home-based study

The end of the title does not need a dot. It should also be included in the title a sign of the purpose of the study, such as the use of telehealth or Mobile home monitoring system

Reply: We have changed the title to better reflect the content of our study:

"How stable is lung function in patients with stable chronic obstructive pulmonary disease when monitored using a telehealth system? A Longitudinal and home-based study"

Abstract

Put the abbreviations correctly after the full name in parentheses such as chronic obstructive pulmonary disease (COPD).

Some abbreviations are after the comma and this is not true such as and inspiratory capacity, (IC)

results

what is the 2SD

Reply: Changes are performed according to your comments.

Standard deviation (SD) is now written out. The 2SD range corresponds to the range around the mean that includes 95% of the observations.

Main background

Put the abbreviations correctly after the full name in parentheses such as chronic obstructive pulmonary disease (COPD).

Some abbreviations are after the comma and this is not true such as and inspiratory capacity, (IC)
Please write all the abbreviations and full names in the journal format at the end of the manuscript.

The sequence of paragraphs in the introduction is not well stated and no semantic relationships can be found between the paragraphs.

Reply: The abbreviations are now in parentheses and commas are taken away throughout the manuscript.

A list of abbreviations is included at the end of the manuscript, page 16.

We have made modifications to the text in order to enhance the relationship between the different paragraphs in the background.

Do we need the correct data to implement telehealth requirements or do we need the telehealth to get the correct data?

The need to implement telehealth is not understood because the whole study is concerned with obtaining accurate data and it does not say what telehealth are going to help and what problems to solve at present study. Because this study can be done at home without using telehealth and then are collected the recorded data and next are analyzed (What is the necessity of telehealth)

Reply: Thank you for this relevant consideration. A section with clinical implications in the Discussion section has been added.

Clinical implications

Telehealth is considered to enable close monitoring of the patient in a real-life situation as well as transferring data on a regular basis to the clinic. Home monitoring of patients with COPD has received increased attention the last years. Both to help patients with self-management strategies but also to be able to detect exacerbations and by preset alarms help decision making for healthcare professionals. Many telehealth (TH) systems have been designed to identify signs of COPD exacerbations, but few previous studies have reported the nature of recorded lung function data and what variations to expect in stable versus unstable patients. This is of relevance when interpreting results of home monitored lung function parameters. From a clinical perspective, it is also important to relate the variation in lung function to the spirometric COPD grade. However, this could not be done in this study due to the low number of participants.

Methods

Participants and study design:

Remove ethical code from Participants and study design and transfer it to ethical approval.
What is mMRC?

Is the 4 to 6 month timeframe selected for a specific reason? This is not mentioned or why measurements are taken three times a week.

Reply: Changes have been done accordingly.

Modified Medical Research Council (mMRC) dyspnoea scale is now written out.

The time frame differed due to practical reasons (like vacations). Our goal was a study period of minimum of four months and a maximum of six months.

A sentence is added in the manuscript:

The frequency of three days per week was chosen to closely monitor potential variation yet achieve a relevant compliance to the procedure.

Samaher Al-Janabi (Reviewer 2): Really, i admire this manuscript too much, good idea, well organization but i hope from authors to achieve the following points

Reply: Thank you for your comments.

1. All the figures must enhance their quality

Reply: We have checked the quality of the figures. Moreover, earlier the figures were uploaded as Word files, but we have now uploaded them as separate image files.

2. Write complete algorithm represent the a novel method suggest by them based on suitable format or pseudo code

Reply: The method of how to record and the algorithms to describe lung function are clearly defined (e.g. in the referred ATS/ERS guidelines). Therefore, the algorithms themselves are not novel. However, we have provided a short methodological description as supplementary materials.

We added a line in the methods section:

“More details regarding the recording and processing of the recorded lung function signals can be found in Supplementary Materials”.
3. Add new section under title the hypothesis and limitations of the develop method present by author(s).

Reply: Unfortunately, we do not fully understand this proposal. If this concerns the limitations of our method, we do already have a short section regarding the limitations of the study. As one example, one limitation is the lack of direct feedback to the patients regarding how they performed the measurements. If the editor/reviewer considers this point to require another response from us, please make the proposal more specific.

4. Multi points in this manuscript need justification and prove by the author(S), This point related to results as figures and tables

Reply: We have modified some tables and also adjusted the width of the columns in the tables. Unfortunately, some numbers (standard deviations) and units may not have been visible in the previous version of the manuscript, but is now corrected.

We have also modified Figure 2, since the bold lines were difficult to distinguish. These are now shown in red color.

5. Update the references list by adding the following reference related to your'work. in general, all these references indexing in ISI and Scopus Database,

Reply: Thank you for the suggestion. We have studied the suggested papers but, unfortunately, we cannot find that any of them are of relevance to the present manuscript and, thus, they have not been included in the reference list.

6. Add section under title discuss explain on it the advantages/disadvantage of this Construction based on the researcher(s)'opinion to become as Guide of the other researchers work at the same field , at the same time to increase the weight of your manuscript.

Reply: Thank you for this very relevant comment. We have added a section where we describe the clinical relevance in the Discussion section.

7. change the title of manuscript to become more suitable with your'job

Reply: We have changed the title and hope that it now better reflects the content of our study.

Leila Ahmadian (Reviewer 4): It is a well written manuscript that can be published after revision.

Reply: Thank you for your valuable comments!
From the title of the manuscript readers can not get an insight about the topic discussed in the manuscript.

Reply: The title is changed to better reflect the content of the study.

The following statement mentioned in the results section of the abstract is not the finding of the current study "although it was unusual with a decrease of more than 50 mL per measurement of FEV1 between three consecutive measurement days".

Reply: Thank you for this observation. Unfortunately, there was an error in the Results section (where the threshold for FEV1 should be >50 ml, not >100 ml). We have corrected this error:

“a total of 34 periods … where FEV1 decreased with a total of >50 ml over several consecutive measurements”.

Although it was mentioned in the Methods section, when presenting the results, we also repeated the important point that the decreases in FEV1 were found between measurements performed at the same time of the day.

In addition, we have added the corresponding number of periods where successive decreases >100 ml in FEV1 and IC also are reported.

The first sentence of the conclusion in the abstract is not suitable. Please summarize the main findings of the study

Reply: Thank you for the comment. The first sentence in the abstract has been changed.

About the sampling not only a limited number of participants recruited but also the sampling method was not described.

Reply: The sampling method is described on page 4 in the method section as well as in a previous paper based on the pilot study. The subjects were consecutive patients recruited at our clinic.

Regarding the sampling of recordings, we have added a brief description of the analyses of the lung measurements as supplementary material.

Do authors have any estimation about the total study population?

Reply: The prevalence of COPD is 8-10%.
The study period is quite long. Is there any reason for that?

Reply: We wanted to follow the patients for a long period of time to be able to monitor possible exacerbations. The time frame differed due to practical reasons (like vacations). Our goal was a study period of minimum of four months and a maximum of six months.

Did the authors contacted the patients during the study period? If yes? How frequent?

Reply: It was not within the frame of this study to give feedback to the patients.

Was there any reminder system to remind patients to do the measurements?

Reply: There was a calendar-based reminder but no audio or visual alarm.

What is the implication of the study and the future plan?

Reply: Thank you for the comment. A new section regarding the clinical implication is added.