Reviewer's report

Title: Quality of life is associated with physical activity and fitness in cystic fibrosis - a cross sectional and longitudinal observational study

Version: 1 Date: 10 July 2013

Reviewer: Iris Groeneveld

Reviewer's report:

It is an important topic and the fact that the analyses are longitudinal and the sample size is relatively large are strengths of the study. However, I have some comments

MAJOR COMPULSORY

Introduction
- First of all, the statement ‘Based on a complete lack of cross sectional and longitudinal data in CF…’, is not entirely true; see Groeneveld et al 2012, a cross sectional study of HRQOL (measured by the CFQ-R) and BMI, FEV1, VO2peak, etc, in a population with CF aged 6-17 years. I think you should mention that reference, and state what is new to your study. Also, you could refer to it in the discussion, when explaining the differences between your findings and those of others.

Methods
- Can you tell some more about procedure the recruitment (were all children invited, and by whom), and the response rate?

Results
- There are large deviations between the self reported and objectively measured MVPA in hours/week (Tab 2). You report that the objectively measured MVPA showed no correlations with HRQOL. The self-reported MVPA however showed significant associations with more than one HRQOL variable. In the discussion you mention this is an important finding. However, the objectively measured MVPA (which is usually considered more valid than self-reported) shows otherwise. Could there be any form of bias in the self-reported MVPA? If so, discuss this in your limitations section.

DISCRETIONARY

Methods
- From the text I understand that you performed separate regression analysis, each with one independent variable (ie FEV1, VO2peak) at the time (+ the standard set of variables such as gender). However, there might be considerable ‘overlap’ between the influence of each variable on HRQOL. Why did you not consider building a multiple regression model using forward or backward regression analysis, in order to detect the variables that are significantly
associated with HRQOL independent of the other variables?

- The chances of finding a significant association increase when performing multiple tests. You could consider a correction for multiple testing, or mention this ‘limitation’ in the discussion section.

- You pooled all training groups in your regression analysis (training vs no training), whereas I can imagine that the home-based training group in practice had a ‘lower impact’ intervention (less time/ lower intensity) than the supervised training groups. Why not split the intervention groups? (if the reason is that there was no difference between the five arms, you could have left the training vs no training variable out).

Discussion

- In your penultimate paragraph you recommend PA of at least moderate intensity, in order to fitness. Is moderate intensity PA sufficient for improving fitness, and how is that in children with CF, or would this require high intensity PA?

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests