

# Is it feasible to design a useful interface for COPD self-management?

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## **Abstract**

Chronic Obstructive Pulmonary Disease (COPD), is a degenerative disease of the lungs that is treatable but not curable. Although COPD is not a well-known condition, the WHO estimates that by 2030, it will be the 3rd leading cause of death world-wide. Treatment for COPD is typically a combination of pharmacotherapy regimens, nebulisers, and long term oxygen therapy. In addition to this, pulmonary rehabilitation is also used to aid the patients to recondition their muscles and lungs to deal with the condition.

Maintaining a consistent exercise pattern has been shown to improve the condition and general wellbeing of individuals with COPD. Being able to maintain a steady exercise routine has been shown to be difficult, from a self-management and behaviour point of view. The recording of activity data can subsequently be analysed and formatted to show the levels of activity/inactivity over time. The information is then used to present the individual with a periodic report of their activity, in conjunction with how they have felt over this period of time. These reports are then shared with health care professionals with the aim of assisting the patients to find a meaningful and achievable set of activities within the bounds of their current condition, and becoming part of their self-management plan. Combining the recorded activity data and Health Related Quality of Life (HRQoL) questionnaires, it is hoped that such an interface would assist the individuals in maintaining a daily activity regime, by engaging the user with meaningful information about their activity levels, which in turn would benefit with the management of their condition.

This aim of this research is to establish if it is feasible to build a useful interface for COPD self-management. A user-centred approach was used to gather information by means of a questionnaire, and the responses were used to develop the prototype interface. Following the build of the prototype, it was evaluated by a similar group of people who responded to the requirements gathering survey. Based on the results of the evaluation, and responses within the requirements gathering phase, it can be said that based on the cohort who participated in the study, that the interface was indeed found to be useful, and hence feasible to design such an interface.

To conclude, based on the positive response to both the idea and results generated, it would seem worthwhile to expand this research. This would entail refining the requirements process and having closer involvement with the users during the design and build phases. Furthermore, the inclusion of validated activity trackers would be included to provide the baseline activity data required to operate the interface. The continuum of care surrounding patients with COPD ought also to be included, so as to gauge their level of understanding of the condition and their ability to understand the needs of COPD patients. Such an interface as the one proposed would help lift that barrier, as they would be able to see the trends in activities compared to periods of illness, and adapt their care plans accordingly by seeing patterns in activities that might forewarn of a potential exacerbation. In doing so, the patient would avoid the distress and complications of being admitted to hospital, and the healthcare system would benefit from a reduction in costs for treatment of patients with COPD.