**UCOPD Questionnaire: Development and underpinning research**

The UCOPD questionnaire was developed over 5 stages.

***Stage 1:*** Important topics for inclusion in the education component of pulmonary rehabilitation and key factors which are important for the delivery of education were identified in a previous focus group study of patients with COPD and health professionals regularly involved in the management of COPD (Wilson J., O’Neill B., et al. 2007). These topics were cross referenced with the current evidence base for pulmonary rehabilitation and education for patients with COPD. The conceptual framework for this questionnaire relates to understanding, self-efficacy and satisfaction, and so questions were developed to assess understanding and self-efficacy relating to these topics, and relating to satisfaction with the educational component of pulmonary rehabilitation (O’Neill B., Cosgrove D., et al. 2012).

Health professionals and patients with COPD assessed the face and content validity, user-centredness, feasibility and acceptability of the UCOPD questionnaire.

***Stage 2:*** The use of plain English and the readability of the UCOPD questionnaire were assessed using the Drivel Defence software and the Simple Measure of Gobbledygook (SMOG) formula. The Drivel Defence software calculates the number of sentences below and above 20 words and provides potential alternative words. The SMOG formula estimates the years of education required to understand written text.

***Stage 3:*** Confirmatory factor analysis was used to assess the structural validity of the UCOPD questionnaire.

***Stage 4:*** Test-retest reliability and internal consistency were assessed in patients with COPD. Patients completed the questionnaire on two occasions, one week apart.

***Stage 5:*** The responsiveness of the UCOPD questionnaire to pulmonary rehabilitation was established in patients with COPD. Patients completed the questionnaire before and after a pulmonary rehabilitation programme. The convergent validity of the UCOPD questionnaire was assessed by comparing it to an existing knowledge questionnaire. Floor and ceiling effects were explored by establishing the range of patients’ scores and the numbers of patients who obtained the minimum and maximum possible scores for each domain and section.

During the development and testing of the UCOPD questionnaire any queries that patients had raised during its administration were recorded. These were reviewed and amendments were made to improve the questionnaire layout, comprehension, ease of administration and assessment properties.

**Underpinning research**

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