

Abstract

Background Previous research identified significant associations between physical activity (PA) and subjective symptoms in patients with COPD. However, the direction of these associations is unclear.

Objective To investigate the direction of the association between PA and psychological symptoms, breathlessness and fatigue in patients with COPD using ecological momentary assessment (EMA).

Methods Participants from the FAntasTIGUE study answered eight EMA questionnaires per day at random time points, for 5 consecutive days. Ten subjective feeling states were rated on a 7-point Likert scale: 'I feel relaxed, short of breath, energetic, cheerful, insecure, irritated, satisfied, anxious, tired, and mentally fit'. Concurrently, PA was assessed as total step count at a 15- and 30-minute time window pre- and post-EMA, using the ActiGraph GT9X Link. Multilevel modeling examining the direction of the association were controlled for pre-EMA steps and the previous EMA score. Significant confounders and time of day were included as covariates.

Results Thirty-four patients (66±7 years, FEV1% 52.1±19.7, 56% men) with valid data were included. Feeling more relaxed was associated with a higher step count 15 minutes post-EMA. A higher step count at 15 and 30 minutes pre-EMA was associated with feeling less relaxed, and more breathlessness and tiredness. Additionally, more steps taken 15 minutes pre-EMA was associated with feeling less satisfied (all p≤0.05).

Conclusion Feeling relaxed suggests a bidirectional association with PA. Psychological symptoms, breathlessness and fatigue appear to be a consequence of performing PA instead of being the cause.

We recommend

The longitudinal association of daily physical activity and symptoms of exacerbations in COPD patients Sarah Crook, European Respiratory Journal, 2017	RELATIONS BETWEEN MOOD AND DAILY ACTIVITIES: AN ECOLOGICAL MOMENTARY ASSESSMENT Abel Pichardo, Innov Aging, 2023
Association between peripheral muscle strength and daily physical activity in patients with COPD - a meta-analysis Anne-Kathrin Rausch-Osthoff, European Respiratory Journal, 2014	Ecological Momentary Assessment of Physical Activity in Hispanics/Latinos Using Pedometers and Diaries Elva M Arredondo, Oxford Academic Books, 2007
Relation between daily physical activity and exercise capacity in patients with COPD Marlies Zwerink, European Respiratory Journal, 2011	Associations of Daily Sleep and Stress With Rumination: An Ecological Momentary Assessment and Actigraphy Study Taylor Vigoureux, Innov Aging, 2021
Association between air pollution and physical activity in patients with COPD Maria Koreny, European Respiratory Journal, 2020	CONNECTIONS BETWEEN DAILY ACTIVITY PATTERNS AND ECOLOGICAL MOMENTARY ASSESSMENTS OF PAIN IN OLDER ADULTS T M Manini, Innov Aging, 2018
Association between morning symptoms and physical activity in COPD: a systematic review Amanda R. van Buul, European Respiratory Review, 2017	Evaluating Fatigue of Ovarian Cancer Patients Using Ecological Momentary Assessment Karen Basen-Engquist, Oxford Academic Books, 2007