

Use of non-cough expiratory efforts to enhance throat discomfort measurement in refractory chronic cough: A proof-of-concept study

Authors: Terence E. Taylor, Evelyse Travassos, Denis P. Drennan, Yaniv Zigel, Laura Kütt, Helen E. Venn, Olivier Poirot, Michael M. Kitt

Introduction

Throat discomfort and urge-to-cough beyond cough alone is frequently described by patients, based on observations from cough specialists. While cough is a well-defined explosive event, other non-cough events, perhaps related to cough, represent a continuum of sounds that can be difficult to distinguish from coughs and from one another. Despite these definitional challenges, quantifying the frequency of such events would be an important step toward characterizing these phenomena in patients with chronic cough.

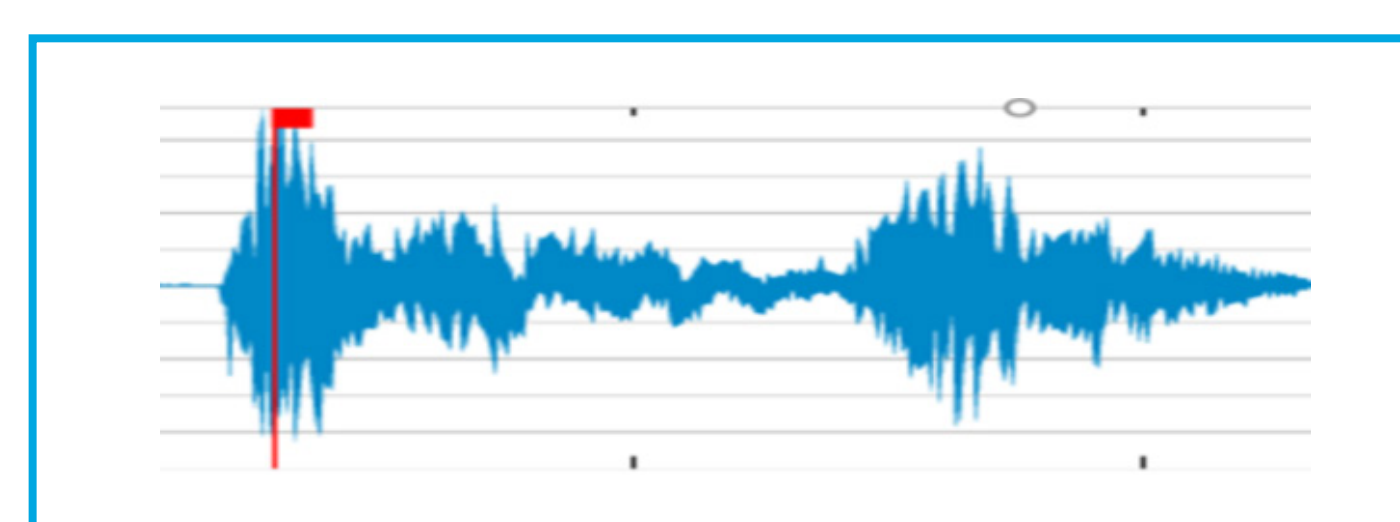
Methods

After an extensive literature review, we established a working definition of a non-cough expiratory effort (NCEE), a term encompassing sounds such as throat clearing and grunts. In this pilot study, trained analysts annotated coughs and NCEE events in VitaloJAK® 24-h audio recordings from 10 subjects with refractory or unexplained chronic cough as part of a retrospective analysis (data from a clinical study NCT04866563). All subjects were recorded as having a throat discomfort visual analogue scale (VAS) score of ≥ 55

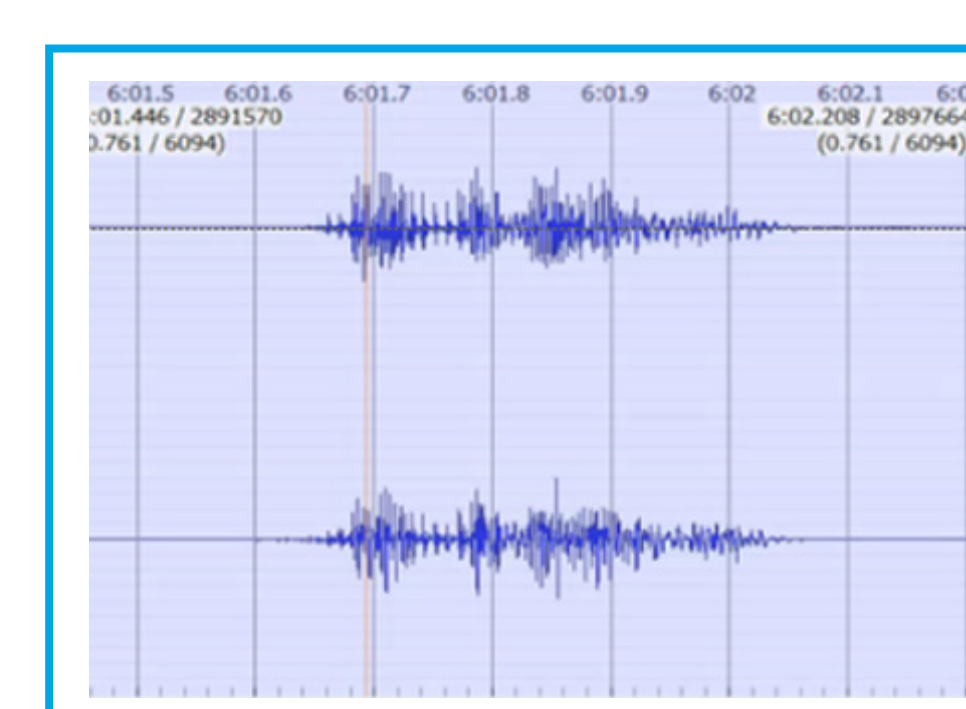
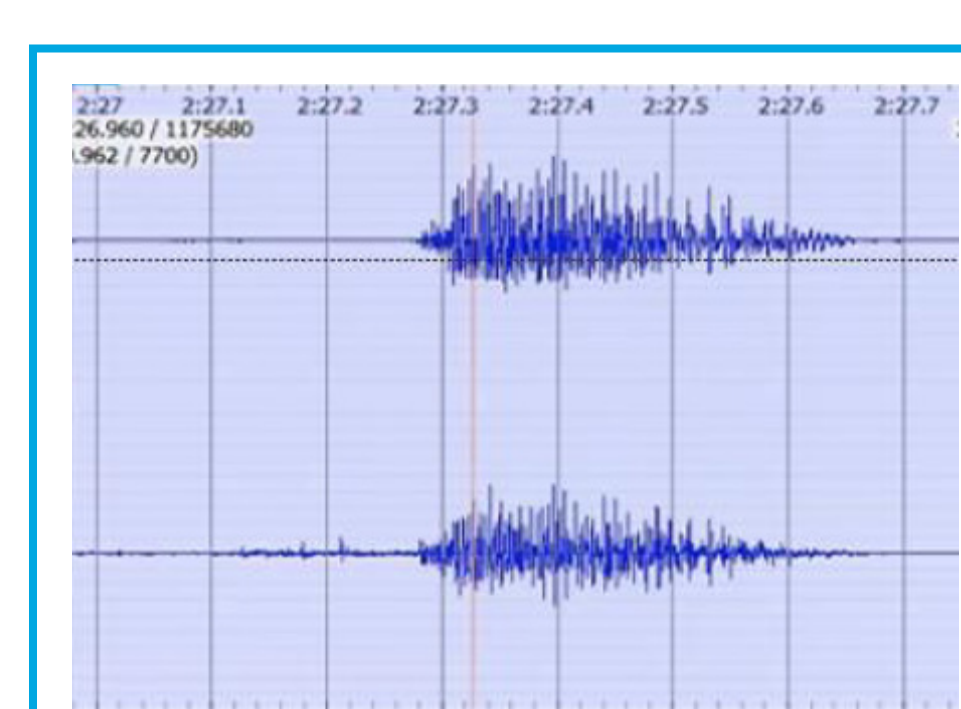
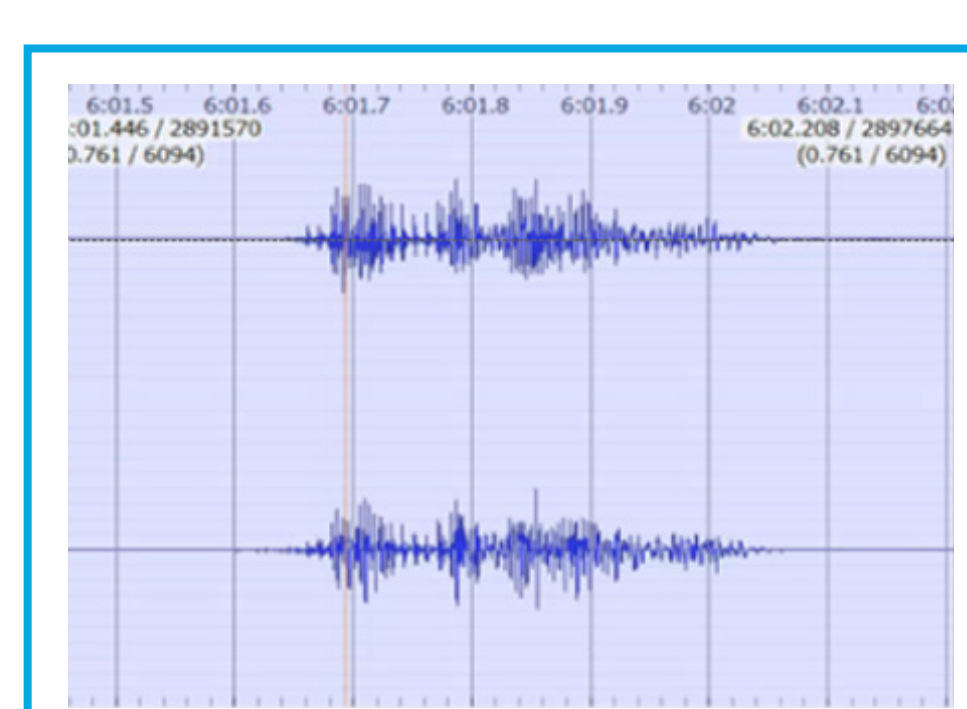
Conclusion

This work provides a practical exploratory definition of NCEE events based on observed sounds and proposes an annotation framework for a consistent and repeatable annotation approach. It may be valuable to explore the significance of these events to complement cough frequency measures, or to consider them within the context of cough bouts, to better understand whether the inclusion of NCEEs reflects patients' lived experience of this multifactorial disease.

Example audio signature vs cough signature



Classical Cough audio signature



NCEE example audio signatures from VitaloJAK device shown as audio waveforms.

Results

Figure 1.
Cough counts vs NCEE counts. Median cough count 712.5 (min 217, max 1488). Median NCEE count 109.5 (min 0, max 345).

