TO THE EDITOR,

Health-related quality of life questionnaires are patient-reported outcome measures that are widely used to evaluate the health status of patients with bronchiectasis. The Bronchiectasis Health Questionnaire (BHQ) was developed to assess health status using general and simple scoring systems to facilitate clinical use. Aside from evaluating symptoms of patients with bronchiectasis, this simplified questionnaire eases the communication between patients and the multi-professional team by guiding specific conduct and assessing the efficacy of different interventions. The validation of the BHQ was carried out in an in-person manner. However, testing its application in the online format is mandatory, mainly due to challenges related to in-person administration, such as the busy routine of patients, transportation barriers, and the lack of family support. In addition, remote administration is preferable during the COVID-19 pandemic because it contributes to social distancing and helps prevent the spread of the coronavirus.

The objective of the present study was to compare the in-person and online applications of the BHQ and evaluate which format is preferred by patients with bronchiectasis. The human research ethics committee of the two institutions where the study was carried out approved the study (Nove de Julho University, Protocol No.: 2,532,903 and University of São Paulo, Protocol No.: 2,574,759).

Bronchiectasis patients were recruited between October 2017 and December 2018 from a tertiary referral university hospital in São Paulo. The inclusion criteria were (1) clinical and tomographic diagnosis of bronchiectasis, (2) age ≥ 18 years old, and (3) clinical stability (i.e., no coughing, high volume or thick consistency of pulmonary secretion, purulent pulmonary secretion, increased dyspnea, exercise intolerance, fatigue, or malaise in the four weeks prior to the study). As for exclusion criteria, the following were considered: (1) smoking or tobacco smoke loads > 10 pack-years, (2) associated pulmonary disease (asthma, chronic obstructive pulmonary disease, interstitial lung disease, or cystic fibrosis), (3) associated cardiovascular diseases, or (4) the inability to answer questionnaires. The sample size followed COSMIN standards, which consider a minimum sample of 50 participants optimal for reliability studies.

After assessing the eligibility criteria, the participants completed a paper-based BHQ and were submitted for reliability studies. Considering a minimum sample of 50 participants optimal due to COSMIN standards, which consider a minimum sample of 50 participants optimal for reliability studies, the sample size followed COSMIN standards, which consider a minimum sample of 50 participants optimal for reliability studies. The validation of the BHQ was carried out in an in-person manner. However, testing its application in the online format is mandatory, mainly due to challenges related to in-person administration, such as the busy routine of patients, transportation barriers, and the lack of family support. In addition, remote administration is preferable during the COVID-19 pandemic because it contributes to social distancing and helps prevent the spread of the coronavirus.

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In-person and online application of the Bronchiectasis Health Questionnaire: are they interchangeable?

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The BHQ scores obtained from the in-person and online application formats did not present significant differences. Reliability was considered substantial (ICC = 0.89; 95%CI: 0.82–0.94) and internal consistency was adequate (Cronbach's alpha = 0.94). The standard error of measurement was small (1.77 points), and no ceiling or floor effects were observed in either form of application.

Regarding the participants’ preference regarding the mode of questionnaire administration, 26% reported no preference, whereas 74% stated that the online format was much better.

Our results show that both formats of the BHQ are valid and equivalent to assess the quality of life and symptoms of patients with bronchiectasis.
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These findings are in line with a study that compared the in-person and online application of the COPD Assessment Test (CAT) and the Clinical COPD Questionnaire (CCQ) in patients with COPD, showing adequate internal consistency and substantial reliability.\(^{(7)}\) In our study, the SEM was used to evaluate the agreement between the two BHQ administration formats, and we found a narrow variation for this measure. In another study conducted with COPD patients, the authors observed good correlation, agreement, and reliability between in-person and online administration formats of CAT.\(^{(8)}\) However, CAT scores were significantly higher in the face-to-face application (10.0 ± 7.4) than in the online format (8.6 ± 7.8). The assumption for this difference is that the online format was completed without supervision at the participants’ homes, whereas the in-person format was filled out under supervision at the outpatient clinic.\(^{(8)}\)

A comparison performed between the in-person and online administration of the Asthma Quality of Life Questionnaire and Pediatric Asthma Quality of Life Questionnaire in patients with asthma showed that the online administration format was acceptable. Similar to our findings, the participants from these studies preferred the online over the in-person format.\(^{(9-10)}\)

No ceiling or floor effects were found in the in-person or online administration formats, indicating that the online administration of the BHQ can also assess different responses to pulmonary rehabilitation or pharmacological interventions. The online BHQ format allows evaluating patients in their homes, with no need for displacement to medical offices or rehabilitation clinics.

This study had some limitations. The individuals were recruited from a single referral center for bronchiectasis in São Paulo. However, it receives patients from different regions of São Paulo and Brazil. Since this is a secondary study, randomization was not possible. Nonetheless, it was also not performed in other studies with COPD and asthma, and the results from previous studies were similar to those found herein.\(^{(7,9)}\)

In conclusion, the in-person and online administration formats of the BHQ are equivalent and interchangeable. Both versions can be used to assess the quality of life of patients with bronchiectasis.

**ETHICAL APPROVAL**

All procedures followed the ethical standards of the institutional and national research committee and adopted the Declaration of Helsinki (1964) and its later amendments or comparable ethical standards. Informed consent was obtained from all individuals included in the study (Certification No: 2,532,903 and 2,574,759).

**DECLARATION OF CONFLICTS OF INTEREST**

The authors have no conflicts of interest to declare.

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