Review of: "Assessment of COVID-19 from Features Extraction of Exhaled Breath Using Signal Processing Methods"

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Potential competing interests: No potential competing interests to declare.

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Article Title: "**Assessment of COVID-19 from Features Extraction of Exhaled Breath Using Signal Processing Methods**"

An algorithm for valid exhaled breath waveform segmentation and feature computation is developed to identify COVID-19 infection using exhaled breath patterns for distinguishing a COVID and non-COVID condition. This algorithm is utilized to evaluate the valid exhaled breath waveforms and compute the features classified to distinguish COVID and non-COVID conditions. Although an interesting topic and an overall exciting work, the authors had to consider the following suggestions to improve the quality of their paper.

The sample size of the study is considered small; also, the demographics of the participants did not adequately represent the general population.

The authors should specify the main contribution to the field of COVID-19 detection, where the novelty of using exhaled breath for COVID-19 detection should be highlighted.

The significance of the paper is highlighted by expanding the background information on COVID-19 and its impact, also by providing a wider context for the study.

The introduction should provide more detailed context about the historical development to provide a comprehensive understanding for the reader. However, it should include a more detailed review of existing literature on COVID-19 detection methods, especially those that focus on breath analysis. The limitations of current methods should be highlighted. What are the gaps between this study and the previous studies?

Is it possible to include the practical implications for clinical settings or public health strategies? This will focus on the potential impact of your findings on COVID-19 detection.

Table 1 could be improved with more demographic information such as age ranges and gender distribution, along with some other relevant information.

The author should discuss some relevant medical history information, such as diabetes and hypertension, which can impact COVID-19 severity and respiratory function. Moreover, common symptoms like fever, cough, and shortness of breath, which provide context for the breath analysis, should be discussed also.

What are the confidence intervals for the AUC values? This will help in estimates of this value.

The significance of this work is highlighted by comparing the performance of the proposed algorithm with other existing models in COVID-19 detection.