Rapid Reviews COVID-19

Review 1: "Assessment of physiological signs associated with COVID-19 measured using wearable devices"

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RR:C19 Evidence Scale rating by reviewer:

- **Strong.** The main study claims are very well-justified by the data and analytic methods used. There is little room for doubt that the study produced has very similar results and conclusions as compared with the hypothetical ideal study. The study's main claims should be considered conclusive and actionable without reservation.

Review:

I am submitting this review for the manuscript titled "Assessment of physiological signs associated with COVID-19 measured using wearable devices." The authors have utilized a wearable health monitoring device, Fitbit, to monitor respiration rate, heart rate, and heart rate variability and have collected surveys from participants to assess COVID-19 cases. Two approaches were considered in this study, a symptom-based approach and physiological signs-based method. The first utilized logistic regression classifier to predict the need for hospitalization of COVID-19 cases based on the self-recorded symptoms that the patients exhibited. The second utilized a neural network classifier to predict whether a person was sick from four days prior until the day patients began showing symptoms. Based on the results presented in this manuscript, I recommend this manuscript for the publication in this journal. To strength the manuscript, the following questions and comments are considered to be addressed:

1. On page 4, Can the authors elaborate how the Fitbit system distinguishes light, deep, and REM sleep?
2. On page 4, when RMSSD and entropy were only computed between midnight and 7am, were the authors assuming the subjects were sleeping? Is it an important parameter that the subjects are sleeping? Please elaborate.
3. On page 6, reference to Figure 5 is missing.
4. It is unclear how the parameters for the need for hospitalization were determined and what they mean, since there is variation in the symptoms people experience compared to the progression of the disease.
5. How were the death cases considered in the study, if any?