

Paper ID

245

Paper Title

Chronic Respiratory Disease: Risk Modeling Potential and Limitations

Track Name

Applications track

Reviewer #1**Questions**

- **1. Summary of the review**
 - The authors apply regression models in the context of chronic respiratory disease, to predict mortality rates. Results are evaluated with R-squared.
- **2. Strong points**
 - - Important domain
 - - Extensive study to extract insights
- **3. Weak points**
 - - Overall, the paper could be greatly improved solely concerning structure and maturity.
- **4. Detailed comments to authors**
 - - The authors go to great length to delve into the results obtained, which is the great positive of the paper
 - - The downside is that the methodology used seems to be in need of great revision.
 - - If the focus of the authors is mortality rates, one could imagine that not all mortality rates are equally important, meaning that some values are of greater value in terms of obtaining a correct prediction.
 - - This leads us to the evaluation methodology used. R-squared is a correlation metric that is a great asset in combination with predictive error analysis tools/metrics. But, alone, it is not suited to evaluate problems in which you have a great asymmetry of importance in domain values (the previous point).
 - - In summary, the results obtained should be reviewed thoroughly and extended to (at least) include a more robust set of metrics (e.g. [1])

[1] <https://link.springer.com/article/10.1007/s10994-020-05900-9>
- **5. Recommendation**
 - Weak Reject
- **7. Confidence**
 - High

Reviewer #2

Not Submitted

Reviewer #3**Questions**

- **1. Summary of the review**

- The paper uses Random Forest to predict mortality rates attributed to Chronic Respiratory Diseases using climate variables. The model was evaluated using feature selection and hyperparameter tuning with cross-validation. The model presented high R-squared values.
- **2. Strong points**
 - The evaluation is solid.
The results are interesting.
- **3. Weak points**
 - Random Forest is the unique technique. Few conclusions can be done.
The background is limited to few works. There no discussion about related works.
- **4. Detailed comments to authors**
 - I recommend improving the discussion and experimental analysis. The related works are too simple. There is no baseline technique. Other regression techniques need to be used to validate the results.
- **5. Recommendation**
 - Weak Reject
- **7. Confidence**
 - Medium

Reviewer #5

Questions

- **1. Summary of the review**
 - This paper proposed a method for Chronic Respiratory Disease modelling.
- **2. Strong points**
 - Chronic Respiratory Disease is worth modelling and investigating.
- **3. Weak points**
 - The presentation of this paper is hard to follow, and the experiment results are not well organized.
- **4. Detailed comments to authors**
 - 1. Section II is materials, but it is the dataset introduced. I suggest changing it to the dataset.
 - 2. Some unnecessary results, such as test datasets without optimal hyperparameter should be omitted.
 - 3. Currently, there are many method names in Fig. 1 and 2, which is very difficult to follow.
 - 4. Figure 9 is very hard to read. It is better to illustrate the important part instead of present the whole picture.
 - 5. There should be a flowchart showing how the whole method goes in each component, with inputs and outputs clearly presented.

Overall, the paper is not easy to read. It also lacks novelty as the model are mostly existing machine learning models.

- **5. Recommendation**
 - Weak Reject
- **7. Confidence**
 - Medium