Review of: "Improved Cosine Similarity Measures for q-Rung Orthopair Fuzzy Sets"

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Potential competing interests: No potential competing interests to declare.

Review report

Title: Improved Cosine Similarity Measures for q-Rung Orthopair Fuzzy Sets

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The primary contribution of this paper some novel cosine similarity measures for q-rung orthopair fuzzy sets (q-ROFSs).

General comments: This article is well-organized. All the presented results are both novel and effectively communicated. The paper is remarkable for the substantial efforts invested by the authors in illustrating the applicability of their method. I believe that the obtained results have the potential to address practical problems characterized by a degree of uncertainty. I must extend my congratulations to the author of this paper.

However, there are still some issues that require attention and revision, as outlined below:

Some typos and additional comments:

1. **In Introduction –** Explain the novelty of the work. Mention the aim, methodology, and results in abstract sections. In Introduction stress more the scope, baseline information, and the problem being connected to the paper.
2. **In Conclusion section –** Please identify the limitations of your research (e.g., small research sample) and the potential it's continuous. Moreover, update the conclusion with some future works.
3. I advise the authors to state some applications of their works in the other fields; for instance, A "Related Work" section should be incorporated to underscore the study's motivations, especially: Some expected applications of the concepts presented in the future, whether in practical life or other fields and considering decision-theoretic rough sets-based works like:

- A three-way consensus model with regret theory under the framework of probabilistic linguistic term sets, doi: https://doi.org/10.1016/j.inffus.2023.02.029
- Medical diagnosis for the problem of Chikungunya disease using soft rough sets, doi: https://doi.org/10.3934/math.2023455
- Economic Decision-Making Using Rough Topological Structures, doi: https://doi.org/10.1155/2023/4723233
- Topological approach for decision-making of COVID-19 infection via a nano-topology model,

doi: https://doi.org/10.3934/math.2021457

- Topological visualization and graph analysis of rough sets via neighborhoods: A medical application using human heart data, doi: https://doi.org/10.3934/math.20231379

These papers are much related to the manuscript topic. So, improve the literature review by citing them.

1. Please ensure all necessary punctuations and italics are added, if required.
2. Could you offer additional examples to emphasize the limitations of the current similarity measure? A single example might not sufficiently illustrate.
3. The work lacks a methodology or algorithm.
4. I'm unable to identify any practical application stemming from the proposed study.
5. The work lacks both comparative and parameter analysis.

Final decision: "Accept with major revisions"

The technical quality of the paper is very good. Authors have success in proving many results about the properties of their introduced concepts. The introduced approaches will be useful in applications and I think that they open the way for more applications in real-life problems. Therefore, I strongly recommend this paper for publication after making the above major revisions.

Finally, thank you for allowing me the opportunity to read and evaluate your work, which makes such an important link between theory and practice.

With best regards