

REVIEWER'S REPORT

Manuscript No.: IJAR-59004

Title: The Spatial Landscape of Gender Inequality: Evaluating Female Empowerment in India Using Principal Component Analysis.

Recommendation:

Accept as it is

Accept after minor revision.....

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality			✓	
Clarity			✓	
Significance		✓		

Reviewer's ID: JPR-130

Detailed Reviewer's Report

Overall Evaluation:

The paper addresses an important topic on women's empowerment and regional inequality in India. The use of NFHS-5 data, PCA, and clustering is useful. However, some methodological and presentation issues need improvement before publication.

Strengths:

- Relevant and important research topic.
- Uses NFHS-5 data.
- Clear research objectives and questions.
- Uses PCA to construct the empowerment index.
- Hierarchical clustering provides useful regional comparisons.
- Highlights differences between states and regions.
- Provides practical policy suggestions.
- Limitations are clearly mentioned.

Areas for Improvement:

1. **Indicator Selection:** Only three indicators are used. More dimensions such as employment, income, financial access, political participation, health, and asset ownership could be considered.
2. **PCA Method:** The reported eigenvalue of **0.1214** appears inconsistent with the claim that the first component explains **67.66%** of variance. This calculation should be carefully checked.

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3. **PCA Weights:** The paper should clearly explain how the eigenvector values were converted into the final index weights.
4. **Clustering:** The reason for selecting five clusters should be explained more clearly using the silhouette results.
5. **Data Consistency:** The abstract mentions **28 states and 8 UTs**, while the cluster table appears to contain a different total. The state/UT count should be checked and corrected.
6. **Spousal Violence:** Reported violence may be affected by differences in awareness and reporting behaviour. This limitation should be emphasized when comparing states.
7. **Literature Review:** Add more recent studies and make the research gap more specific.
8. **Results:** Some statements are too broad and should be supported directly by the data.
9. **Policy Implications:** Policy recommendations should be more directly connected to the findings of each cluster.
10. **Language:** The manuscript requires grammatical and editorial correction. Some sentences are lengthy and repetitive.
11. **Title:** The title can be shortened for better clarity.