REVIEWER'S REPORT

Manuscript No.: IJAR-55527

Title: Assessment of Disease Severity in Sickle Cell Disease Patients from the Nandurbar Region of Maharashtra

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 Name: Dr S. K. Nath

Date: 02.01.26

Detailed Reviewer's Report

Strengths of the Study

- The study addresses a significant gap by developing and applying a region-specific disease severity scoring system for SCD in the tribal populations of Nandurbar, Maharashtra, which is a high-prevalence area.
- It utilizes a comprehensive methodology combining clinical parameters and hematological markers, offering an integrated approach to disease assessment.
- The sample size of 86 patients provides meaningful insights into the disease spectrum in a vulnerable and underrepresented population.
- Ethical considerations, including informed consent and approval from the Institutional Ethical Committee, are explicitly mentioned.
- The study's findings contribute to understanding disease burden and could inform tailored management strategies for tribal populations.

Weaknesses of the Study

- The sample size, while reasonable, remains limited and may restrict the generalizability of findings to larger or different tribal groups.
- Being a cross-sectional study, it cannot establish causal relationships or evaluate disease progression over time.
- The lack of detailed genetic or biomarker analysis limits understanding of factors influencing disease severity beyond clinical and basic hematological parameters.
- The methodology for severity scoring, although innovative, is not validated against other established scoring systems, limiting its broader applicability.
- The study does not specify the exact statistical methods used for data analysis or test the scoring system's reliability and validity statistically.
- There is a minor need for clearer presentation of some tables to improve readability.

Reviewer Comments

- **Title and Abstract:** The title accurately reflects the study's focus. The abstract is clear and concise, providing an overview of the background, aims, methods, key findings, and implications. However, including specific details on the scoring system's validation process would strengthen the abstract.
- **Introduction and Objectives:** The introduction provides adequate context on SCD prevalence, regional importance, and the need for region-specific severity scoring. The objectives are clear,

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aiming to develop and assess a severity score in Nandurbar's tribal population. Clarification on whether the score is newly developed or adapted from existing models would be beneficial.

- **Methodology and Statistical Analysis:** The methodology is described with sufficient detail regarding participant selection, diagnostic criteria, and parameters assessed. The use of clinical and hematological parameters for scoring is appropriate; however, details on the statistical analyses, including validation procedures and reliability testing of the scoring system, are lacking and should be addressed. Sample size calculation is not provided, and the representativeness of the sample could be discussed further. Ethical approval and informed consent are appropriately mentioned.

- **Results and Discussion:** Results are presented clearly with appropriate tables summarizing severity distribution and component scores. The findings that most patients have moderate to severe disease are consistent with regional epidemiology. The discussion appropriately compares findings with other literature but could include more on the potential impact of interventions and management strategies specific to this population. The low incidence of stroke and nephropathy is attributed to early intervention, which is plausible.

- **Conclusion and Implications:** The conclusion emphasizes the importance of tailored severity assessment for effective management. It justifiably calls for region-specific tools; however, recommendations for clinical implementation or further validation steps are not elaborated. The implications for public health strategies are relevant.

- **Ethical Clearance:** The study mentions obtaining ethical approval from the Institutional Ethical Committee and informed consent, aligning with ethical standards.

- **Language and Presentation:** Overall, the language is clear with minor typographical errors. Some sections could benefit from improved clarity and sentence restructuring for better readability. Tables are relevant but could be formatted consistently for ease of interpretation.

- **References:** References are pertinent and appropriately cited, although a few references could be worth updating or discussing in more detail.