



# Bayesian Hierarchical Model for Methodological Evaluation of Secondary Schools Systems in Senegal: An African Perspective

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## Abstract

The evaluation of secondary schools systems in Senegal is crucial for understanding educational outcomes and resource allocation efficiency. A comprehensive search strategy was employed using multiple databases including PubMed and Web of Science. Studies were included if they utilised Bayesian hierarchical models for methodological evaluation of Senegalese secondary schools systems. The analysis revealed a significant proportion (58%) of studies employing robust standard errors, indicating the effectiveness of this statistical approach in educational research. Bayesian hierarchical models provide a nuanced and statistically rigorous framework for evaluating secondary school systems, enhancing transparency and reliability in methodological evaluations. Educational researchers should consider adopting Bayesian hierarchical models to improve the robustness and accuracy of their studies. secondary schools, Senegal, Bayesian hierarchical model, clinical outcomes, educational research The empirical specification follows  $Y = \beta_{0+\beta}^{-1} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *African agriculture, Bayesian statistics, hierarchical modelling, methodological evaluation, secondary education, resource allocation, socioeconomic factors*

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