



Bayesian Hierarchical Model for Evaluating Adoption Rates in Public Health Surveillance Systems in Senegal: A Systematic Literature Review

Ibrahima Niang¹, Mahmoudou Diallo^{2,3}, Madani Sallaby^{4,5}

¹ Université Gaston Berger (UGB), Saint-Louis

² Department of Epidemiology, Université Gaston Berger (UGB), Saint-Louis

³ Department of Clinical Research, Cheikh Anta Diop University (UCAD), Dakar

⁴ Cheikh Anta Diop University (UCAD), Dakar

⁵ Institut Sénégalais de Recherches Agricoles (ISRA)

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Correspondence: iniang@yahoo.com

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Author notes

Ibrahima Niang is affiliated with Université Gaston Berger (UGB), Saint-Louis and focuses on Medicine research in Africa.

Mahmoudou Diallo is affiliated with Department of Epidemiology, Université Gaston Berger (UGB), Saint-Louis and focuses on Medicine research in Africa.

Madani Sallaby is affiliated with Cheikh Anta Diop University (UCAD), Dakar and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems play a crucial role in monitoring disease outbreaks and ensuring effective public health responses in Senegal. A comprehensive search strategy was employed to identify relevant studies published between and . Studies were included if they utilised Bayesian hierarchical models to measure adoption rates in Senegalese public health surveillance systems. Bayesian hierarchical models demonstrated varying levels of adoption, with some reaching up to 75% across different healthcare facilities in rural areas. The use of Bayesian hierarchical models provided a robust framework for understanding and improving the adoption rates of public health surveillance systems in Senegal. Further research should focus on implementing these models in diverse settings to ensure their effectiveness and adaptability. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, Bayesian inference, Hierarchical modelling, Public health surveillance, Quantitative methods, Sampling theory, Statistical analysis*

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