



Optimal Lighting Solutions for Eye Health Promotion in Addis Ababa's Primary Schools

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Abstract

This study addresses a current research gap in Medicine concerning Optimal Lighting Solutions for Eye Health Promotion in Primary Schools of Addis Ababa, Ethiopia in Ethiopia. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Optimal Lighting Solutions for Eye Health Promotion in Primary Schools of Addis Ababa, Ethiopia, Ethiopia, Africa, Medicine, protocol This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, eye health promotion, lighting interventions, school-based studies, pupil adaptation, visual ergonomics, controlled trials*

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