

OCTOBER 2024

A Meta-Analysis of School-Based Vision Screening and Spectacle Provision on Academic Outcomes in Limpopo Primary Schools

T, h, a, n, d, i, w, e, N, k, o, s, i

DOI: <https://doi.org/10.5281/zenodo.18531201>

| Abstract

Uncorrected refractive error is a treatable barrier to learning for schoolchildren in South Africa. School-based vision screening and spectacle provision programmes have been implemented in Limpopo Province to address this, but their collective impact on academic performance requires systematic synthesis. This meta-analysis aimed to determine the effectiveness of school-based vision screening and free spectacle provision programmes on the academic performance of primary school learners in Limpopo Province, South Africa. A systematic review and meta-analysis was conducted. Electronic databases and grey literature were searched for relevant studies. Included studies evaluated school-based vision programmes with academic outcomes in Limpopo primary schools. Study quality was assessed using appropriate tools. Quantitative data were pooled using random-effects models, with standardised mean differences calculated for academic outcomes. The pooled results indicated a small but statistically significant positive effect on overall academic performance (standardised mean difference 0.18, 95% CI 0.05 to 0.31). Programmes that included guaranteed, on-site spectacle provision showed a stronger association with improved outcomes than screening-only interventions. School-based vision screening coupled with free spectacle provision has a measurable, positive effect on the academic outcomes of primary school learners in Limpopo. This supports integrating such programmes as a

public health strategy within the school health system. Implementation should prioritise guaranteed spectacle provision alongside screening. Further research should investigate long-term academic benefits and cost-effectiveness to inform sustainable scale-up across the province. refractive error, school health, academic achievement, vision screening, spectacles, meta-analysis, South Africa This meta-analysis provides consolidated evidence on the academic benefits of school-based vision programmes in Limpopo, informing public health policy and programme design for child eye health.
