

ARE SOCIOECONOMIC CONDITIONS ASSOCIATED WITH ASTHMA PREVALENCE, SEVERITY, AND TREATMENT ACCESS? A CROSS-SECTIONAL STUDY OF CHILDREN LIVING IN LOW-INCOME SOUTH AFRICAN COMMUNITIES

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Background South Africa has the highest prevalence of childhood asthma in sub-Saharan Africa and the fourth highest asthma mortality rate among young people worldwide. While poverty and social deprivation are pervasive, asthma studies in the region have largely focused on biomedical factors or urban-rural differences. This study sought to identify broader socioeconomic risk factors for childhood asthma prevalence, severity, and treatment access in South Africa and possible mediating pathways.

Methods We recruited 6,002 children aged 10–17 through door-to-door household sampling of six randomly selected low-income urban and rural sites in three South African provinces. Self-report questionnaires measured demographics, family structure, community violence, social support, household responsibilities, poverty, employment, and psychological symptoms. Asthma was indicated by self-reported diagnosis, with severe asthma defined as at least one asthma attack in the past month. Asthma treatment was defined, by minimum standards, as having a reliever inhaler. Multivariable logistic regressions provided odds ratios (ORs) for possible risk factors for asthma prevalence, severe asthma prevalence, and treatment access, adjusted for age, gender, urban-rural location, and province. Multiple mediation analyses using bootstrap confidence intervals (CIs) were conducted to test indirect risk pathways.

Results Child anxiety [OR = 1.08, (95% CI) 1.04–1.12] and community violence (OR = 1.14, 1.00–1.30) were associated with greater odds of having asthma. Children with more outdoor housework (OR = 0.83, 0.71–0.98) and living in greater poverty (OR = 0.93, 0.88–0.99) had lower odds of having asthma. Severe asthma was predicted by child depression (OR = 1.14, 1.03–1.26) and greater household poverty (OR = 1.14, 1.01–1.28). Responsibility for more outdoor (OR = 0.66, 0.46–0.95) or indoor (OR = 0.73, 0.53–0.99) household tasks and living with more children were associated with lower odds of having asthma treatment (OR = 0.80, 0.67–0.96), while children living with more employed people had higher odds of having treatment (OR = 1.42, 1.06–1.92). Most socioeconomic factors operated in ‘risk pathways’, wherein structural factors (e.g., urban living) were associated with individual factors (e.g., less outdoor tasks), which predicted greater odds of having asthma or severe exacerbations. **Conclusion** Children living in greater poverty had lower odds of having asthma, potentially due to less urbanised lifestyles, but higher odds of having severe asthma and lacking treatment. Higher psychosocial stress may contribute to asthma onset and severity, while household-level stress may impede children’s access to treatment. While prospective longitudinal research is needed to infer causality, findings support the utility of moving beyond the biomedical model in addressing the prevention and treatment of childhood asthma.