



A Meta-Analysis of Improved Water Access and Adolescent Girls' School Attendance in Rural Oromia, Ethiopia, 2004

Abebe Tadesse¹, Mekonnen Hailu^{2,3}, Saron Kebede^{2,3}

¹ Department of Epidemiology, Mekelle University

² Mekelle University

³ Department of Pediatrics, Haramaya University

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Correspondence: atadesse@yahoo.com

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Author notes

Abebe Tadesse is affiliated with Department of Epidemiology, Mekelle University and focuses on Medicine research in Africa.

Mekonnen Hailu is affiliated with Mekelle University and focuses on Medicine research in Africa.

Saron Kebede is affiliated with Department of Pediatrics, Haramaya University and focuses on Medicine research in Africa.

Abstract

In rural Ethiopia, adolescent girls frequently bear the primary responsibility for domestic water collection. This time-consuming task is a potential barrier to regular school attendance. The rural Oromia region provides a relevant setting to examine if improved water access influences educational outcomes for this group. This meta-analysis aimed to synthesise quantitative evidence on the association between household access to an improved water source and school attendance rates among adolescent girls aged 10–19 years in rural Oromia, Ethiopia. A systematic search of electronic databases and grey literature was conducted to identify relevant observational studies. Inclusion criteria required studies to report quantitative measures of both water access, defined by Joint Monitoring Programme standards, and school attendance for the specified population. Data were extracted using a standardised form. A random-effects model was used to calculate pooled odds ratios, with heterogeneity assessed via the I^2 statistic. Five studies met the inclusion criteria. The pooled analysis indicated a positive association, with girls in households having an improved water source showing 1.8 times higher odds of regular school attendance (pooled OR 1.80, 95% CI 1.45–2.23) compared to those without. Considerable heterogeneity was present ($I^2 = 67\%$). Access to an improved water source is associated with significantly higher school attendance among adolescent girls in rural Oromia. Reducing the water-fetching burden appears a plausible mechanism for supporting girls' education. Public health policy should integrate water, sanitation and hygiene initiatives with educational equity strategies in rural Ethiopia. Future research should employ longitudinal designs to better establish causality and investigate the specific time-saving thresholds needed to improve attendance. Water access, adolescent health, gender equity, education, Ethiopia, WASH. This synthesis provides consolidated evidence on the water-education link for a vulnerable demographic, informing cross-sectoral policy and highlighting priorities for future investigation.

Keywords: *Meta-analysis, Water access, School attendance, Adolescent girls, Sub-Saharan Africa, Rural Ethiopia, Gender roles*

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