RESEARCH SUMMARY

Project WISE Impact Evaluation

A Cluster-Randomised Trial in Addis Ababa, Ethiopia (2024)

Splash

In 2021–2022, Splash, in partnership with London School of Hygiene and Tropical Medicine (LSHTM) conducted a large-scale, cluster-randomised controlled trial (RCT) to evaluate the impact of Project WISE (WASH in Schools for Everyone) across 60 public primary schools in Addis Ababa, Ethiopia. The study enrolled over 6,200 pupils and assessed the effects of a comprehensive WASH package—including water infrastructure upgrades, handwashing facilities, hygiene promotion, and menstrual health education—on student health and school attendance. Results showed a statistically significant 16% reduction in pupil-reported respiratory illness in intervention schools, suggesting the intervention's potential to reduce airborne disease transmission. However, no significant impact was observed on pupil-reported diarrhoea or overall school attendance during the study period, likely due to the delayed implementation of sanitation upgrades. The program also modestly improved menstrual health self-efficacy among girls but had limited effect on broader psychosocial or gender-equity outcomes. These findings reinforce the importance of integrated WASH programming while highlighting the complexity of influencing school attendance through health interventions alone. The study demonstrates the feasibility of conducting rigorous, citywide RCTs in dynamic urban school settings and contributes valuable evidence to the global WASH in Schools literature.

MAY 2025

Background

School-aged children in low- and middle-income countries are highly susceptible to WASH-related illnesses like diarrhoea and respiratory infections, which in turn affect school attendance and long-term social and economic outcomes. Project WISE in Addis Ababa, Ethiopia aimed to address these risks through a comprehensive WASH intervention, including water supply improvements, handwashing facilities, hygiene behavior change, and menstrual health education. The intervention was designed to test the hypothesis that enhancing WASH conditions in schools would improve student health and school attendance, with special attention to gender impacts.

Despite a global emphasis on WASH in schools under SDG 6, evidence of the effectiveness of school-based WASH programs in urban settings remains mixed. Project WISE presented an opportunity to rigorously assess the impact of an integrated WASH intervention at citywide scale.

Methods

To evaluate the impact of Project WISE, a two-arm, cluster-randomised controlled trial was conducted across 60 public primary schools in Addis Ababa over the 2021/2022 academic year. Schools were randomly assigned to either receive the intervention immediately or serve as a waitlist control, with the intervention delivered in the subsequent academic year. An 'open cohort' design allowed for the enrolment of over 6,200 pupils aged 7 to 16 years, minimizing attrition and maintaining a large and dynamic study population.

The intervention combined infrastructure improvements—including drinking water filtration and storage, installation of handwashing stations, and the use of behaviorally designed nudges—with a robust hygiene promotion strategy involving hygiene clubs, teacher training, and menstrual health education. Although sanitation upgrades were planned as part of the intervention, these were delayed and not completed during the study period, a factor that would later influence results.

Data collection involved four unannounced visits to classrooms between March and June 2022. During these visits, enumerators recorded roll-call attendance and collected pupil-reported data on respiratory illness and diarrhoea experienced in the past week. Secondary outcomes included measures of mental health, menstrual health self-efficacy, subjective wellbeing, and gender parity in school enrollment. Statistical analyses were conducted using mixed-effects regression models to account for school-level clustering and were carried out according to a pre-registered analysis plan.

Results

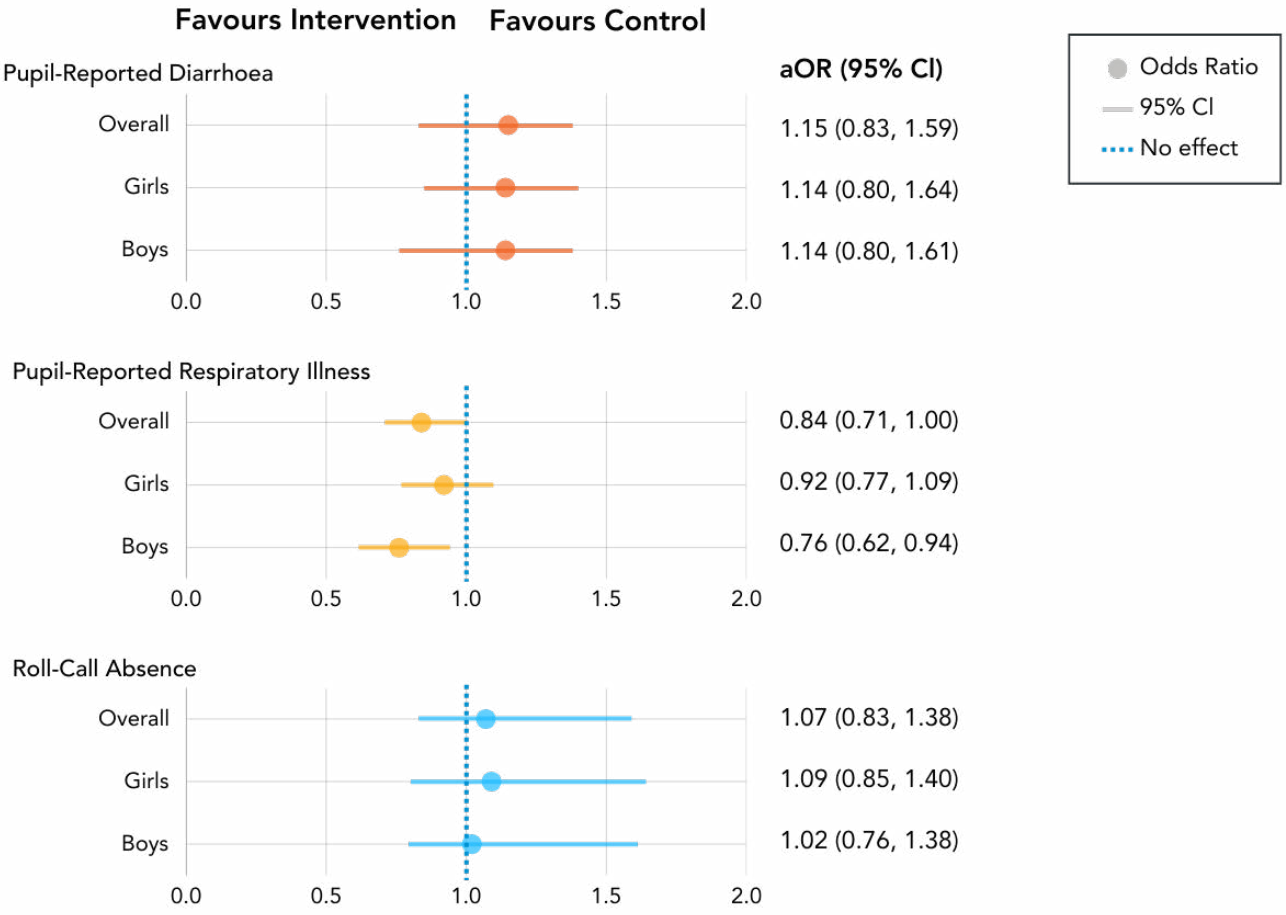
The study successfully enrolled 6,229 eligible pupils, with balanced baseline characteristics across intervention and control groups. Analysis revealed a 16% relative reduction in the odds of pupil-reported respiratory illness in intervention schools compared to control schools (adjusted OR 0.84; 95% CI 0.71–1.00; p = 0.046), suggesting a positive impact of the intervention on respiratory health.

However, no significant difference was found between intervention and control groups for pupil-reported diarrhoea (adjusted OR 1.15; 95% CI 0.84–1.59; p = 0.39) or roll-call absence (adjusted OR 1.07; 95% CI 0.83–1.38; p = 0.59). Secondary analyses showed a small but significant increase in menstrual care self-efficacy among girls in intervention schools, reflected by a 3.32-point improvement on a 0–100 scale. No meaningful differences were observed for other secondary outcomes such as mental health, menstrual practice needs, subjective wellbeing, or gender parity in enrollment.

Subgroup analysis revealed a stronger reduction in respiratory illness among boys, although the reasons for this differential impact were not fully explained by the study data. Sensitivity analyses confirmed the robustness of the primary findings.

Figure 1

Gender-disaggregated intervention effects on primary outcomes



There was some evidence of effect modification by gender (p = 0.021) for pupil-reported respiratory illness in the past 7 days, with a greater intervention effect observed in boys.

Discussion

The results of the Project WISE trial highlight the complexity of achieving broad health and education impacts through school-based WASH interventions. The observed reduction in respiratory illness is consistent with previous findings linking improved hand hygiene with reductions in respiratory infections. This effect is especially significant considering the trial took place during the COVID-19 pandemic, when infection control measures were particularly critical.

The absence of an impact on diarrhoeal disease is likely attributable to the delay in implementing sanitation infrastructure improvements, underlining the necessity of holistic WASH interventions that address both water and sanitation concurrently. Likewise, the lack of impact on school attendance suggests that absenteeism in this context may be influenced by multiple factors beyond WASH access, including household economics, school quality, and broader health determinants.

Importantly, the study reinforced the feasibility of conducting large-scale, open-cohort RCTs in dynamic urban school environments. It also demonstrated that unannounced attendance checks are an effective method for monitoring absence outcomes.

Despite its strengths, the study had limitations, including reliance on self-reported illness measures and a follow-up limited to a single academic year. Future evaluations should incorporate more objective health outcome measures, longer follow-up periods, and analysis of post-intervention sustainability, including the effects of sanitation upgrades once completed.

Overall, Project WISE provides evidence that targeted WASH interventions can reduce specific health risks but may require integrated, multi-sector approaches to achieve broader educational and social outcomes at scale.

Conclusion and Implications

This large-scale citywide school-based WASH intervention demonstrated potential to reduce respiratory illness among primary school children but had no measurable effects on diarrhoeal disease or school attendance during the study period. These findings align with broader global literature suggesting that WASH interventions alone may improve health outcomes selectively and that additional programmatic elements, like sanitation infrastructure upgrades and education system reforms, may be necessary to fully impact attendance and educational outcomes.

Future WASH in Schools programming should consider:

- Integrating sanitation improvements alongside water and hygiene interventions.
- Extending intervention and evaluation timelines to capture long-term effects.
- Differentiating between pandemic and endemic infection contexts in future evaluations.

Further research is needed to better understand the linkages between WASH improvements, school absence, and educational progression, and to ensure gender-equitable impacts across different urban contexts.

CITATION

1. Bick et al. (2024). Impact of a school-based water and hygiene intervention on child health and school attendance in Addis Ababa, Ethiopia: a cluster-randomised controlled trial. BMC Medicine 22:348. https://doi.org/10.1186/s12916-024-03558-x