ABSTRACT

Interactive Education on Waste Management and Smoking Hazards for Elementary Students in Tenggarong Seberang

Nadya Ulya Asti, Muhammad Fathir Maulana Marisi,
Della Juliana Kartika Pratiwi, Azizah Syifa Wardani, Meisya Fransiska

Correspondence E-mail : fathirfathan2005@gmail.com

Background : Household waste burning remains the dominant practice in Mulawarman Village, reported by 77.8% of 72 surveyed households, while smoking behavior was also identified as a community health problem. Both topics ranked among the top intervention priorities during Field Learning Experience (PBL) I. Early education in elementary school is a strategic approach to build healthy habits, yet evidence of its short-term effect on knowledge in this setting remains limited.

Objective : To evaluate changes in knowledge of fifth-grade students on waste management and sixth-grade students on smoking hazards after interactive health education in two elementary schools.

Research Methods/ Implementation Methods : Community service with a one-group pre-test–post-test design was conducted on 16 and 18 July 2026 in two public elementary schools in Tenggarong Seberang. Fifth graders received waste sorting education and ecobrick practice, while sixth graders received education on smoking hazards with a lung-effect demonstration. Knowledge was measured by pre- and post-tests and analyzed using the Wilcoxon signed-rank test ($\alpha = 0.05$).

Results : Waste management: mean scores rose from 71.61 to 74.84 (School A, n = 31, p = 0.354) and from 64.00 to 65.33 (School B, n = 15, p = 0.832); neither was significant. Smoking hazards: mean scores rose from 90.32 to 92.26 (School A, n = 31, p = 0.405) and from 90.59 to 98.82 (School B, n = 17, p = 0.008); only the latter was significant, with reduced score variation. The non-significant result at School A likely reflects a ceiling effect (high baseline score).

Conclusion/Lesson Learned : Interactive education improved mean knowledge scores in all groups, but statistically significant improvement occurred only for smoking hazards in one school. Baseline knowledge strongly influenced the effect, so materials should be tailored to students' initial knowledge and strengthened with longer sessions and repeated reinforcement. Waste education also needs follow-up beyond knowledge, such as practice and behavior change.

Keyword : health education; elementary school; waste management; smoking hazards; ecobrick