ABSTRACT

Title of Abstract : Not All Water Is Equal: The Hidden Impact of Drinking Sources on Maternal Hemoglobin

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Background : Water quality is vital for maternal health. In Indonesia, consuming untreated or low-quality water may increase anemia risk in pregnant women.

Objective : This study examined the relationship between drinking water sources and hemoglobin levels and identified factors influencing water source selection.

Research Methods / Implementation Methods : A cross-sectional study of 72 pregnant women was conducted at Palaran Health Center, Samarinda (Dec 2024–Jan 2025). Data on sociodemographics and drinking water sources were collected via questionnaire, while hemoglobin levels were obtained from laboratory records. Due to non-normal data distribution ($p < 0.05$), the Kruskal–Wallis test with post hoc comparisons was applied. Determinants of water source selection were analyzed using multinomial logistic regression.

Results : Most respondents (76.4%) consumed unboiled refilled gallon water, which was associated with significantly lower hemoglobin levels than bottled or PDAM water ($p = 0.002$). The logistic model was significant ($\chi^2 = 75.233$, $df = 54$, $p = 0.030$; Nagelkerke $R^2 = 0.811$). Significant predictors of water source choice included number of pregnancies, abortion or fetal death history, delivery history, household income, mother's and husband's education levels ($p < 0.05$).

Conclusion / Lesson Learned : Unboiled refilled gallon water consumption is linked to lower hemoglobin levels and higher anemia risk. Reproductive and socioeconomic factors influence water source selection. Education on safe water handling and boiling practices is essential to improve maternal hematologic health.

Keyword : Anemia; Drinking water sources; Hemoglobin; Pregnant women