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Effects of prenatal exposure to tobacco smoke and wood fuel smoke on birth weight in Sri Lanka

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Statement of the Problem: Many researchers revealed the association of smoking and low birth weight. The prevalence of low birth weight in Sri Lanka is quite high and it was 16.3% in 2012. The active smoking among Sri Lankan women is negligible but almost all households use wood as the main cooking fuel. This study aimed to describe the patterns of second hand tobacco smoke exposure and wood fuel smoke exposure among Sri Lankan pregnant women and their effects on birth weight.

Methodology & Theoretical Orientation: A prospective study was carried out in a tertiary-care hospital in Sri Lanka. 87 pregnant women who visited the antenatal clinic at 30 weeks of gestation were asked to answer a questionnaire on passive smoking and kitchen wood fuel smoke exposure. Breath carbon monoxide concentration and percentage of blood carboxyhemoglobin were measured using piCO+ Smokerlyzer® breath carbon monoxide monitor. Birth weight was obtained from the hospital records following deliveries.

Findings: Second hand tobacco smoke exposure was found to be 34.48%. Women who exposed to daily tobacco smoke had delivered neonates with low mean birth weight (2727.5 ± 552.5 g) compared women who exposed about once a week (3056 ± 499.6) ($p < 0.05$). Inversely the percentage of blood carboxyhemoglobin was significantly high in daily passive smokers (1.011 ± 0.273) compared to that of once a week (0.856 ± 0.113) ($p < 0.05$). Almost all women (96.55%) had exposed to wood fuel smoke. Of them only 85.71% women had a kitchen equipped with a chimney. The duration of cooking in a kitchen without a chimney showed strong positive correlation with percentage of blood carboxyhemoglobin ($r = 0.885$; $p = 0.003$).

Conclusion & Significance: Second hand tobacco smoke is associated with low mean birth weight. Long time excessive exposure to wood fuel smoke in a kitchen without a chimney can increase the risk of inhaling high concentrations of carbon monoxide and thereby may lead to adverse pregnancy outcomes like tobacco smoke.

Biography

Malshani L Pathirathna is a Nursing Educator at Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka. She has completed her Bachelor's degree in Nursing and Master's degree in Bio Statistics from University of Peradeniya and currently pursuing Doctoral degree in Maternity Nursing at Niigata University, Japan. Her research interests are low birth weight, maternal nutrition and breast feeding.

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