

A STUDY OF THE LOW BIRTH WEIGHT OF INFANTS  
ARISING OUT OF THE EXPOSURE OF THEIR MOTHERS  
TO SMOKE FROM BIOMASS FUEL  
DURING PREGNANCY

BY  
SUBHANI MANJULA PATHIRATNE

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## ABSTRACT

In Sri Lanka, almost 80% of the population depends on biomass fuel for preparation of food. Use of low quality fuels in inefficient stoves, poor ventilation conditions and prolonged cooking practices often lead to high levels of exposure, which may elevate the health risks and aggravate the existing health problems.

Only a few studies have been done on assessing the exposure of biomass fuel smoke and the health impacts. We have initiated several research projects, including this one on low birth weight, to investigate the health risk associated with biomass smoke exposure.

Low birth weight is defined as weight less than 2500 g at birth and this is established as a risk factor for infant mortality. Of the environmental factors associated with low birth weight, tobacco smoke both active and passive has been widely studied and is a known risk factor. In this study, a questionnaire was used to extract the confounding factors associated with low birth weight. This included questions to gather information on the mother's physical form and health condition during pregnancy, social and economic background of the family, details related to cooking activities such as the type of fuel, level of exposure to smoke from burning fuel and availability of ventilation.

Birth weight data were collected from Yatiyantota area in the Kegalle District and Horana area in the Kalutara District of Sri Lanka. A total number of 369 babies born during the period of May 2003 to December 2004 were included in this survey. Out of the total births included in this survey, 17.3% are low birth weight babies.

The univariate analysis shows that economic status of the family (low income v middle class : OR = 2.560, CI = 1.398 - 4.689), availability of a separate kitchen (no v yes : OR = 2.708, CI = 1.553 - 4.723), type of fuel used for cooking (less clean v clean : OR = 3.913, CI = 1.799 - 8.515) and ventilation in the cooking area (no v yes : OR = 2.676, CI = 1.348 - 5.312) have significant risk and association with low birth weight.

This preliminary analysis and results support that the smoke from firewood, lack of proper ventilation in the cooking area and unavailability of a separate kitchen increase the risk of low birth weight and the mean birth weight of babies born to firewood users is lower than that of the gas and electricity users.