

## **COOKING FUEL USED AT HOME DURING PREGNANCY AND BIRTH OUTCOMES AMONG FEMALES IN KALUTARA, SRI LANKA**

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### **Abstract**

Household Air Pollution (HAP) is a known factor for adverse health outcomes. The major source of HAP in developing countries is the use of unclean fuel (i.e., biomass, kerosene) for cooking. About 66% of Sri Lankan households use biomass for cooking. Objective of the research is to compare birth outcomes among female residents in households using clean (electricity and liquid petroleum gas (LPG)) and unclean cooking fuels for cooking during pregnancy.

An interviewer administered questionnaire was administered (n = 475) to women during the third trimester of pregnancy residing in selected households in the Kalutara Medical Officer of Health area to obtain information on sociodemographic characteristics, type of fuel used for cooking (primary, secondary and tertiary) and kitchen characteristics such as presence of a chimney. A “cooking fuel score” was developed based on the type of cooking fuel used (i.e., primary, secondary and tertiary fuel). In the development of “cooking fuel score” weights were given 100%, 50% and 25% for “primary”, “secondary” and “tertiary” based on mostly used fuel type respectively. Birth weight, occipito-frontal circumference (OFC) and length of new born babies were ascertained from the Child Health Development Record.

Of the 475 mothers enrolled into the study, three mothers withdrew consent and three mothers who had twin pregnancies were excluded from the analysis. 165 (35.2%) households used a clean fuel (electricity = 1 and LPG = 164) as the primary fuel while 304 (64.8%) households used either wood (n=302) or kerosene (n=2). A secondary cooking fuel was used by 376 (80% of studied population) households (clean fuel - n= 273 (72.6%) and unclean fuel – n =103 (27.4%)); a tertiary cooking fuel was used by 160 (34.2% of studied population) households (clean fuel - n=142 (88.7%) and unclean

fuel - n=18 (12.3%). There were 446 (95.1%) term babies and 23 (4.9%) pre term babies. Birth weight of babies born to mothers of households using a clean primary cooking fuel (n=159) was significantly higher than the birth weight of babies born to mothers of households using an unclean primary cooking fuel (n=287) ( $3.05 \pm 0.43$  kg vs.  $2.97 \pm 0.41$  kg;  $p=0.05$ ). Although prematurity was less among mothers in households using a clean primary cooking fuel (3.6%) as compared to mothers of households using an unclean primary cooking fuel (4.9%), the difference in the percentages were not statistically significant. The derived “Cooking fuel score” correlated with the birth weight of singleton babies ( $p = 0.03$ ).

Birth weight of babies born to mothers’ resident in households using an unclean primary cooking fuel was significantly less than that of babies born to mothers in households using a clean primary cooking fuel during the pregnancy.

**Keywords:** Cooking Fuel, Birth Outcomes, Indoor Air Pollution