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## Indoor Air Pollution and Changes of Exhaled Carbon Monoxide: An Exposure-Response Study among Reproductive Aged Women in Central Province, Sri Lanka

Approximately half of the world population still depends on biomass fuel for their daily energy needs including cooking and heating. Sri Lanka is a middle-lower income country where the majority of households use wood as the main cooking fuel. Indoor air pollution (IAP) from biomass fuel smoke, tobacco smoke and mosquito coil smoke places the people at greater health risk. A cross-sectional study aimed at exposure-response assessment was conducted among 128 reproductive aged women, covering four Medical Officer of Health areas in Central Province, Sri Lanka from January to October 2020. An interviewer administered questionnaire and a breath carbon monoxide (CO) monitor called Micro-Smokerlyzer were used to collect data. Women were categorized into three groups based on their expired breath CO concentrations as; green or safe zone (0.0-6.9 ppm), orange or light smoker zone (7.0-10.0 ppm) and red or regular smoker zone (10.1-30.0 ppm). Wood was the primary cooking fuel (39.84%), where liquid petroleum gas (28.13%) and mixed types of fuel i.e. wood plus liquid petroleum gas (21.88%) and wood plus kerosene (10.16%) were also used. Around one third of women reported passive tobacco smoke exposure inside their houses (32.03%) and daily exposure to mosquito coil smoke (37.5%). Proportion of women in the red or regular smoker zone was found as 23.4% and this proportion was significantly higher among the wood plus kerosene users (38.46%) compared to liquid petroleum gas users (11.11%) ( $p=0.043$ ). The results suggest that exposure to IAP is high among reproductive aged women and is at a level of health concern. Primary healthcare providers should have a greater responsibility in risk and exposure reduction through community awareness programs.

**Keywords:** biomass fuel, wood fuel, carbon monoxide, indoor air pollution, Sri Lanka

### Biography:

Malshani Paththirathna is a young academic and a health researcher, holding a doctoral degree from Niigata University, Japan. She currently works at the Department of Nursing, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka in the capacity of senior lecturer in nursing. She nurtures keen interest in designing, implementing and knowledge sharing about significant public health issues related to maternity nursing and women's health.