

Clean cookstoves unaffordable to Bangladeshi women

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Women in rural Bangladesh prefer inexpensive, traditional stoves for cooking over modern ones despite significant health risks, according to a Yale study in the *Proceedings of the National Academy of Sciences*.

A large majority of respondents—94 percent—believed that indoor smoke from the traditional stoves is harmful, but less so than polluted water (76 percent) and spoiled food (66 percent). Still, Bangladeshi women opted for traditional cookstove technology so they could afford basic needs.

"Nontraditional cookstoves might be more successful if they were designed with features valued more highly by users, such as reducing operating costs even if they might not reduce environmental impact," said Mushfiq Mobarak, a co-author and associate professor of economics at the Yale School of Management.

In most rural homes, where there is no electricity, food is cooked over an open fire using wood, agricultural residue and animal dung, known together as "biomass." The result is 50,000 deaths in Bangladesh a year and over 2 million worldwide. The release of black carbon is also a significant source of greenhouse gases.

Fully 98 percent of Bangladesh's 131 million people cook with biomass using traditional stoves despite years of efforts by governments and health organizations to promote models that are fuel-efficient and have chimneys. Moreover, 92 percent of 2,280 Bangladeshi households

surveyed between July and September 2008 had never seen a nontraditional cookstove.

"The adoption and use of these nontraditional cookstoves in the developing world have, with few exceptions, remained disappointingly low," said Puneet Dwivedi, a co-author of the study and a postdoctoral researcher at the Yale School of Forestry & Environmental Studies.

When given a hypothetical choice between a cash subsidy and a nontraditional cookstove, the respondents overwhelmingly chose to spend money on doctors, schools, electricity, clean water, latrines, seeds for planting and structures to protect their land from flooding.

"Household budgetary concerns appear to dominate any health concerns associated with smoke from nontraditional cookstoves," said Robert Bailis, associate professor of environmental social science at the School of Forestry & Environmental Studies.

The researchers also conducted a randomized controlled trial in 42 villages in the Bangladeshi districts of Hatiya and Jamalpur to estimate how sensitive Bangladeshi households are to the price of nontraditional cookstoves.

They found that the demand for nontraditional cookstoves at both market and highly subsidized prices is very low and that demand is highly sensitive to price. At full price, the adoption rate for chimney cookstoves was 2 percent and for efficiency models 5 percent. In addition, a 50 percent discount resulted only in a 12 percent increase in the adoption of efficiency models and a 5 percent increase in the adoption of [stoves](#) with chimneys.

"We find consistent evidence across both analyses suggesting that women in rural [Bangladesh](#) do not perceive indoor air pollution as a

significant health hazard," said Dwivedi.

Provided by Yale University

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