Medical Xpress

Culturally sensitive research in United Arab Emirates pinpoints indoor air quality risks

May 9 2012

The rapid shift from nomadic life to modern-day culture in the United Arab Emirates has exposed residents to significant indoor air quality risks that can lead to respiratory illness, according to a new study from the University of North Carolina at Chapel Hill.

With the swift modernization of the country, UAE governmental agencies have not performed the research required to pinpoint health risks, the study reported. The need to develop governmental research capacity makes collaborations with U.S. research teams vital, but the studies must be conducted in a culturally appropriate way.

"This is an important area of investigation, and the UAE is completely under-researched," said Karin Yeatts, Ph.D., lead study author and assistant professor of epidemiology at the UNC Gillings School of Global Public Health. "There are many good scientific questions that need to be answered, and this area of the world is very deserving of science and public health work."

Knowing about indoor air quality risks is important, Yeatts said, because people in the UAE spend 80 percent to 95 percent of their time indoors escaping the high temperatures.

In the study published May 1 in the monthly journal Environmental Health Perspectives, Yeatts coordinated a research team from UAE and UNC's public health school to test air quality in 628 urban and rural family residences from October 2009 to May 2010. The study reached

1,590 participants, including men, women and children, ages 6 to 18.

Researchers collected data for five air pollutants - sulfur dioxide, nitrogen dioxide, hydrogen sulfide, formaldehyde and carbon monoxide – and monitored indoor air quality for one week.

Thirty percent of homes had measurable levels of sulfur dioxide, and 29 percent had quantifiable levels of formaldehyde. For nitrogen dioxide and hydrogen sulfide, 9 percent and 12 percent of households, respectively, recorded measurable concentrations.

Researchers compared the results to households without significant pollutant levels and discovered family members in homes with measurable sulfur dioxide, nitrogen dioxide and hydrogen sulfide were twice as likely to have doctor-diagnosed asthma. The team also found an increased prevalence of wheezing, including symptoms that limited speech, with these same pollutants. Neurological difficulties, such as difficulty concentrating, were loosely linked to quantifiable exposure of formaldehyde.

UAE households also were exposed to pollutants not found as frequently in the United States, specifically incense. Roughly 86 percent of UAE homes burn incense at least once a week, and formaldehyde levels are three times higher among those households that do so more frequently. Family members in these homes are more likely to report headaches, forgetfulness and difficulty concentrating.

'Burning incense in this region of the world is an important cultural practice, but I do think there are things people can do to reduce exposure," Yeatts said. "People can reduce their exposure by opening windows, burning incense for a shorter time or burning smaller amounts."

Ultimately, Yeatts said, researchers hope the data collection and analysis will help improve public health knowledge in the UAE and support campaigns to limit exposures and risks associated with indoor air pollutants.

More information: Study link: ehp03.niehs.nih.gov/article/fe … tion?articleURI=info%3Adoi%2F10.1289%2Fehp.1104090

Provided by University of North Carolina at Chapel Hill School of Medicine