

Podcast Transcript: Gas Stoves and Your Health

[Theme music]

Ashley Ahearn (AA): You're listening to Environmental Health Chat – a show from the National Institute of Environmental Health Sciences that explores the connections between our health and our world.

I'm Ashley Ahearn.

[Music fades out]

There's a saying you may have heard for when things are going really well – “Now you're cooking with gas!” Well, it might be time to examine that turn of phrase.

Turns out, cooking with gas comes with some health risks. And Dr. Jonathan Levy has been studying those risks since the 90s. He's a professor and the chair of the Department of Environmental Health at Boston University School of Public Health.

Jonathan Levy (JL): The first study that I was involved in looking at gas stoves and indoor air was about 25 years ago.

AA: About 40 percent of Americans cook with natural gas, according to the U.S. Energy Information Administration. And burning natural gas in our homes releases certain kinds of emissions.

JL: The contaminants of concern start with nitrogen dioxide, that's a major contaminant that we worry about when you're burning fuel in the home and that contributes to a lot of different health effects. There are a lot of volatile organic compounds that you find in homes with gas stoves, including things like benzene and toluene, that have known health effects.

AA: Benzene and toluene are known carcinogens. Nitrogen dioxide can affect respiratory and pulmonary health.

JL: There's also increasing evidence that if you're exposed to nitrogen dioxide, it can contribute to development of asthma in kids if you don't already have it. There's also been really strong literature linking it with development and exacerbation of chronic obstructive pulmonary disease in adults. So really, multiple different respiratory endpoints.

AA: Dr. Levy's interest in indoor air quality – and how gas stoves may affect it – started when he was in grad school at the Harvard School of Public Health. He worked on a study that looked at nitrogen dioxide levels inside and outside of homes in 15 different countries to try to understand exposure levels. Young Dr. Levy was surprised to find that indoor nitrogen dioxide exposure levels were higher in many homes than outdoor levels.

JL: And the single factor that best explained the differences in people's personal exposures to nitrogen dioxide was whether or not you had a gas stove. And so I found that fascinating, and this was big cities, small locations, different places around the world: gas stoves were the strongest predictor.

AA: Dr. Levy went on to study the indoor environment for kids with asthma living in public housing in Boston. The same pattern emerged: cooking with gas stoves contributed to higher levels of nitrogen dioxide indoors.

JL: And we also found that there were a good number of families that actually were using their gas stoves not just for cooking but for supplemental heating. And all of that just kind of reinforced to me that: a) gas stoves matter quite a bit for exposures; and b) there's a complicated array of factors that can contribute to who might have higher exposures than other folks.

AA: Race and socioeconomic status play a role in nitrogen dioxide exposure levels. For example, Dr. Levy says, if you rent your home and don't have a say in what kind of stove you have, or if you live in a smaller home without good ventilation...

JL: You're going to have higher indoor concentrations associated with your gas stove. And there's obviously socioeconomic and racial/ethnic disparities and who has larger or smaller homes. And then for ventilation, there are definitely disparities as well in who has a working range hood over their stove that is functioning and able to vent to the outdoors.

AA: Asthma rates are higher among Black, Hispanic, and low-income populations, which makes it important to study the connections between indoor nitrogen dioxide exposure levels and public health outcomes.

JL: So, if you put those pieces together, you are definitely going to see pretty substantial racial, ethnic, and socioeconomic disparities in that gas stove-health linkage. And it connects to topics of energy justice, and a whole other set of issues about quality of home environment and who has access to a healthy home space.

AA: Natural gas is also a source of methane, a potent greenhouse gas which contributes to climate change. And while gas stoves are not our biggest problem, from a climate standpoint, proponents of climate action say we need to electrify our homes and shift away from cooking with gas in order to reduce emissions.

Levy stresses that the transition to a clean energy future has to be equitable. For example, swapping out gas stoves for electric induction cooktops can't just be a luxury for the wealthy. We need equity-centered policies to ensure that those who are most vulnerable are able to make the changes necessary to protect themselves – and the global climate.

JL: Some of the pieces like rebate policies, for example, for purchase of things like induction cooktops can help. You know, as well as creative policy strategies, for example, that target rental housing, where ultimately, you're talking to the owner of the building or the landlord and trying to make sure that they are making investments that are in part for the benefit of the residents as well as for greater society. And so they need to have the financial incentives and wherewithal to do so.

AA: If you have a gas stove there are some steps you can take to reduce your exposure to nitrogen dioxide and volatile organic compounds.

Make sure your ventilation hood is on when you're cooking and, if possible, that the hood is vents to the outdoors. Opening windows and doors can help maximize the circulation of fresh

air. It's also a good idea to keep kids out of the kitchen while the stove is on. Dr. Levy says that there's evidence that cooking on a back burner as opposed to a front burner can also reduce your exposure.

Small individual steps can help keep us safe in our own homes, but when it comes to cooking with gas, those steps can also contribute to the greater good. Now, will getting rid of your gas stove stop climate change? No. But Dr. Levy says that doesn't mean it's not a step worth taking for you and your family's future.

JL: So, it's a part of that puzzle, but it's also a part that carries with it the near term health benefits. So, if you as a homeowner, or we as a society want to invest in trying to electrify homes, the health benefits of doing so can be a pretty important rationale, and the gas stove is a big part of those near term benefits to the residents.

[Music comes up]

AA: I'm Ashley Ahearn. Thanks for listening to Environmental Health Chat.