

Press Release

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Research Study Uses New Way of Assessing Exposure to Pollutants from Shale Gas Development in Southwestern Pennsylvania

McMURRAY, PA, August 31, 2020 – Many people living near shale gas drilling, both in southwestern Pennsylvania and elsewhere, have reported unexpected health symptoms since shale gas development (or fracking) began in earnest around 2005. Scientists have wondered how to determine whether there may be a connection between these adverse health effects and the proliferation of shale gas development – wells, compressor stations, processing plants, pipelines, and other facilities. Now, a new research study offers a unique way to interpret and assess exposure measures and the health impacts to people exposed to pollutants from shale gas development.

Titled “Exposure Assessment of Individuals Living Near Unconventional Oil and Natural Gas Development and Reported Health Symptoms in Southwest Pennsylvania, USA,” the study is authored by Hannah Blinn, Ryan Utz, Lydia Greiner, and David Brown. The peer-reviewed paper was published in PLOS ONE on August 18, 2020.

“More than two dozen epidemiological studies have already shown that shale gas development can be associated with health effects,” said Blinn, a former environmental data scientist for the SWPA Environmental Health Project (EHP). “These health effects include adverse birth outcomes, increased rates of hospital use, asthma, upper respiratory and neurologic symptoms, and other health issues. Our study investigated the density of shale gas facilities and emissions from wells and related these to symptoms in 104 residents of southwestern Pennsylvania reported to EHP. By doing so, we were able to predict the exposure residents had to pollutants and determine whether there may have been a statistical correlation to the health problems they experienced.”

Unlike previous studies, this study evaluates three different estimates of exposure: cumulative well density (how many wells each individual is close to), inverse distance weighting of wells (taking into account that the farther someone lives from a well, the lower their exposure should be), and annual emission concentrations from wells within 5 kilometers (3.1 miles) of people’s homes (using actual reported emissions to gauge exposure). In the case of this study, annual emissions concentrations referred to the

amount of pollutants a person was estimated to be exposed to depending on proximity to shale gas facilities and other risk factors. When controlling for age, sex, and smoker status, each exposure estimate predicted the total number of reported symptoms.

Said Blinn, “What the study confirmed is that, no matter which exposure estimate we used, an increase in health symptoms could be related to higher exposure to shale gas well pads. Based on research from others in the field, exposure to emissions and chemicals released at the well pad could be an explanation for symptoms. The study also confirmed that this exposure may be present at five kilometers or more from the source of the pollution when all exposures are taken into account.”

While the study concedes that the impact of fracking on health requires ongoing research, it raises concern about the growing number of wells around residential areas. This study’s approach represents a more sophisticated method of quantifying exposures and relating them to reported health symptoms. Further, the methodology opens the door to determination of residential health effects from specific chemicals and risks from emissions from shale gas facilities.

Among the study’s co-authors, Dr. Utz is Assistant Professor of Water Resources in the Falk School of Sustainability & Environment at Chatham University. Dr. Greiner is adjunct faculty in the Department of Psychology at San Diego State University and a consultant for EHP. Dr. Brown is an environmental public health scientist and a consultant for EHP.

The study can be accessed here:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0237325>

About SWPA Environmental Health Project

The [SWPA Environmental Health Project](#) (EHP) is a nonprofit public health organization that defends public health in the face of oil and gas development. We provide frontline communities with timely monitoring, interpretation and guidance. We engage diverse stakeholders: health professionals, researchers, community organizers, public servants, and others. We do so because knowledge protects health.