

Case study

Conflicts of interest in citizen science

SOURCE: Macey, G. P. et al. (2014). Air concentrations of volatile compounds near oil and gas production: a community-based exploratory study. *Environmental Health*, 13(1), 1-18. <https://doi.org/10.1186/1476-069X-13-82>

A community-based environmental research study was published in 2014, focused on examining air quality near oil and gas production sites in several parts of the United States. Residents living close to these hydraulic fracturing sites were experiencing a range of symptoms such as headaches, dizziness, light-headedness, running nose, nausea, and sore throat. Air samples were collected by the community members who played a vital role in the study. Volunteers were asked to document visible emissions, odours and sounds deriving from the hydraulic fracturing sites, activity on-site and acute health symptoms in humans. Before data collection, community members completed a training program and received written instructions on how to obtain accurate data.

When analysing the collected samples researchers identified unique chemical mixtures at each location, including significant concentrations of four volatile organic compounds: benzene, formaldehyde, hexane, and hydrogen sulphide. The study revealed that concentrations of several volatile organic compounds at the research sites significantly exceed health-based risk levels, and the existing regulations may not be sufficient to reduce human health risks.

This research study initiated a discussion about different possible conflicts of interest. In the paper, the authors stated that they had no conflicting financial interests; however, questions were raised about the involvement of community members driven by a particular agenda and motivated by their interests. Additionally, five of the authors disclosed that they are employed by non-profit organizations committed to reducing exposure to toxic chemicals. Some critics suggested that it would also be important to consider that some industry-sponsored studies have presented differing conclusions regarding the impact of fracking on air quality.

Questions for discussion:

- 1) Do you think there is a conflict of interest in this case? Why yes or no? If yes, should it be disclosed in the publication?
- 2) It is widely believed that when researchers publish the results of their research, they should disclose their financial conflicts of interest. However, this case suggests that this might be a too narrow way of how a conflict of interests should be understood in contemporary research and in the context of citizen science. If so, what other possible conflicts of interests should be disclosed?
- 3) Do potential conflicts of interest in citizen science differ from potential conflicts of interest in science in general? If yes, what is the difference?