

Assessing Cumulative Burdens in Environmental Justice Communities

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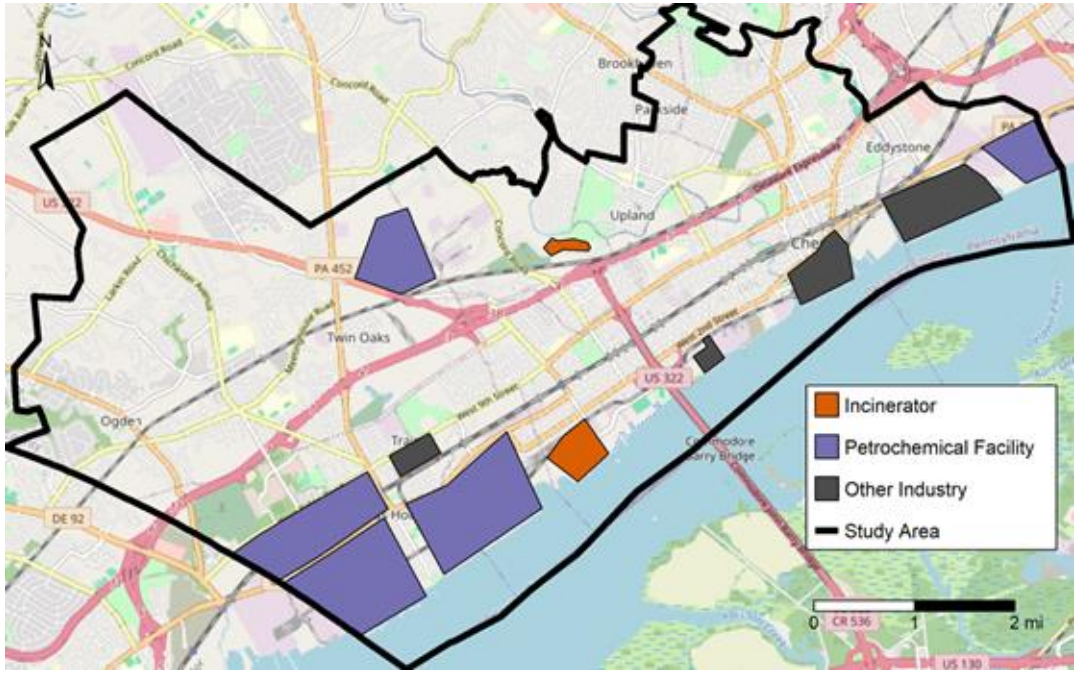
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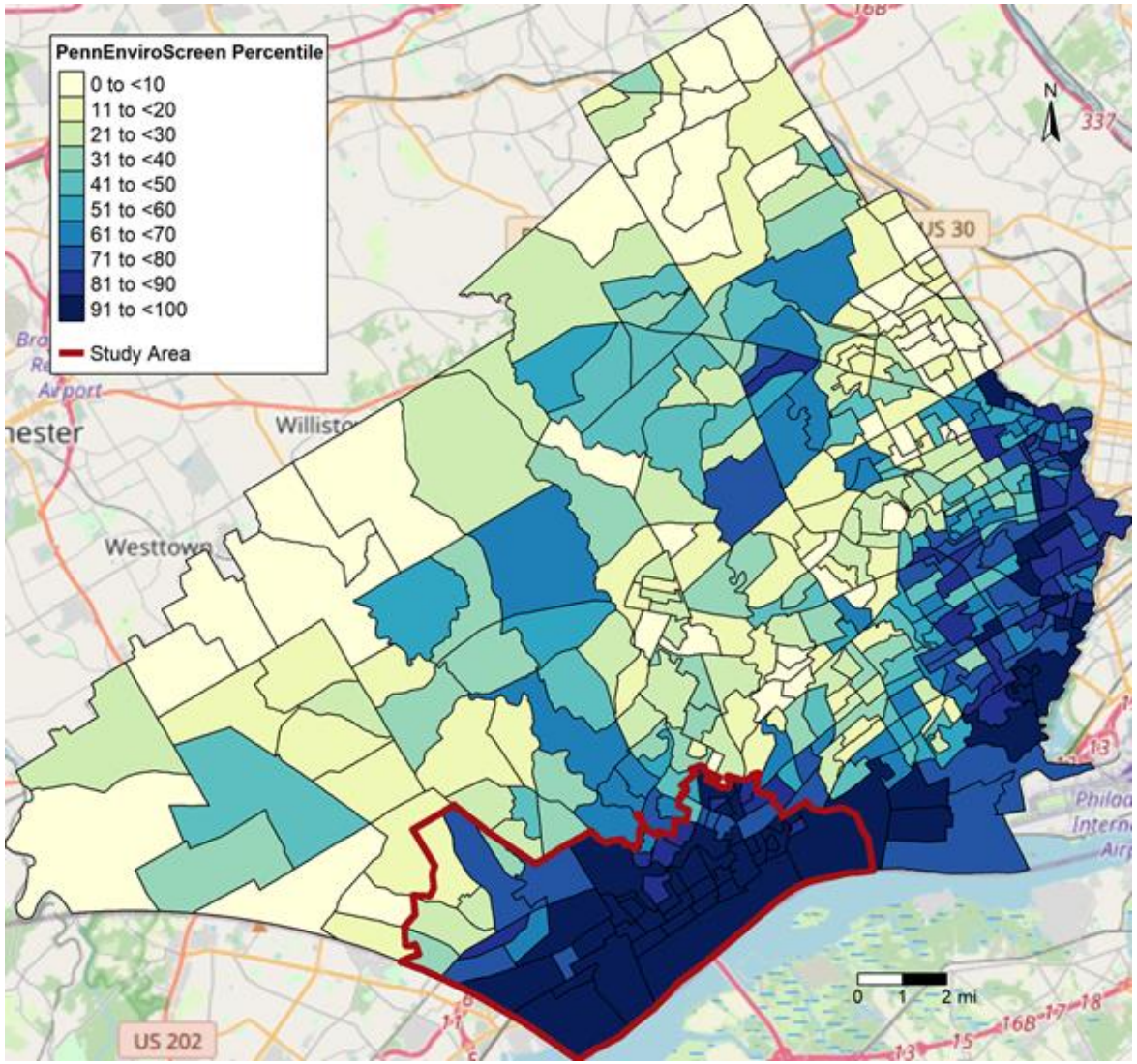
Thom Nixon

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Background





Cumulative Impacts are the totality of exposures to combinations of chemical and nonchemical stressors and their effects on health, well-being, and quality of life outcomes.

Study Goals

1. Describe how residents report their experience of cumulative impacts, both the chemical (e.g., exposure to air pollutants) and nonchemical (e.g., economic hardship) stressors.
2. Collect data to improve our understanding of community strengths, stressors and needs.
3. Provide data to residents, community leaders, and policymakers that can be used to further advocacy efforts to mitigate harm and improve health outcomes.

Approach and Methods

Community Based Participatory Research Approach:

Community investigators collaborated on all phases of the research process (e.g., survey and focus group questions, led focus groups, collaborated on data analysis and wrote the final report.

Community Environmental Health Survey (June 2023-February 2024)

- Gathered data about physical, mental and environmental health impacts in the community
- All participants were compensated

Focus groups (January – February 2024)

- Gathered data about residents' experiences and dove deeper into themes identified in survey.
- All participants previously took the survey and were compensated for their participation

Study Participants

Survey Participants (n=147)

- Average age of participants: 45 years
- Average years of residency: 30 years
- 78% identified as female
- 62% identified as non-Hispanic White
- 27% identified as non-Hispanic Black or African American
- 9% identified as Hispanic
- 52% of participants had one or more children under the age of 18 living in their household

Focus group participants (n=22)

Environmental Health

Odors, air pollution and noise were common environmental health concerns; participants noted direct impacts on well-being and quality of life.

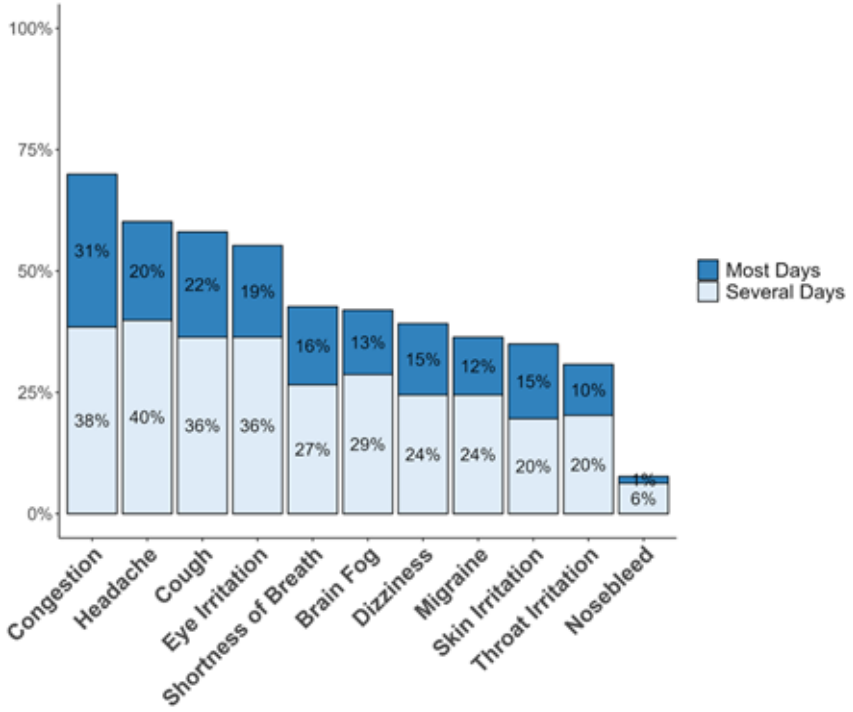


- 95% of survey participants reported smelling odors in their communities.
- A higher percentage of Black Participants noticed odors regularly than White participants (97% vs. 78%)
- 100% of participants living in the City of Chester reported odors regularly, whereas 85% of those living in Trainer and 82% in Marcus Hook did.
- Around half of survey participants reported disruption of daytime activities (53%), sleep disruption (48%) or physical harm (56%) form noise in their communities.
- *“It just smells so bad around here, like you gotta hold your breath...” - Participant 12”*

Physical Health

Adverse physical symptoms were common and interfered with daily life. Self reports of adverse physical health symptoms were more common than clinician-diagnosed health conditions (i.e., allergies, hypertension, and asthma.)

- Allergies (43%), hypertension (26%) and asthma (25%) were the most common physical health diagnoses among survey participants.
- 50% of survey participants accomplished less than they would like due to physical health symptoms.
- ***"I think most of the issues that I have that would be caused from the environment would be just those bad odors, and then almost always having, like, you know, nausea or a headache on those days." – Participant 5***



Mental Health

Adverse mental health symptoms were common and interfere with daily life. Self-reports of mental health symptoms consistent with depression and anxiety were ent with depression and anxiety were agnoses of these conditions.

of survey participants reported diagnosis by a doctor or thcare professional of a mental health condition e living in Southern Delaware County.

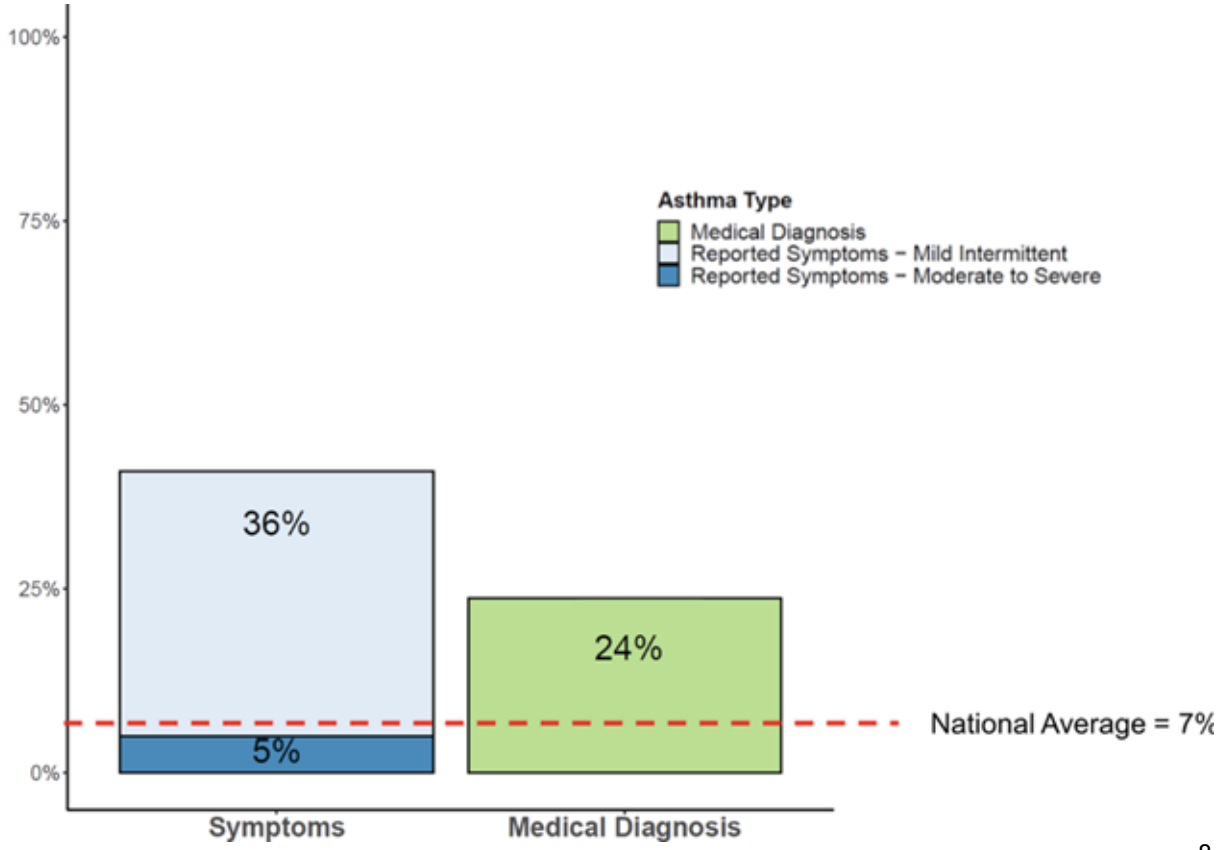
result of their mental health symptoms, 45% of ey participants reported feeling like they mplished less than they would like.

e to open the windows and look out over the trees, it's a cute neighborhood... But once the train starts ng by, I can't hear anything but that train, making that noise constantly, and so then I shut the window and se myself off, and mentally that's not good, because I so confined at this point that any kind of outside air njoyment of birds and nature is cut off... it's cut off ediately." - Participant 17

Children's Health

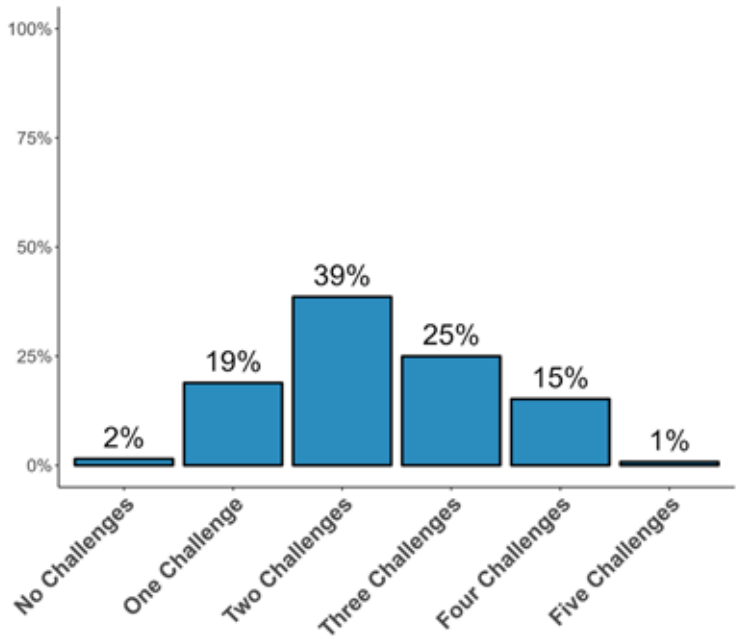
More children experience symptoms consistent with asthma (e.g., wheezing and coughing) than have clinician-diagnosed asthma

- Asthma rates were high among children living in Southern Delaware County.
- Allergies (30%) and asthma (22%) were these children's most reported medical diagnoses.
- In the past 12 months, 28% of children received medication treatment for asthma or other breathing issues, with 19% currently taking asthma medication daily.
- 9% of children were diagnosed with a mental health condition, most often anxiety or depression.



Cumulative Impacts

Participants who faced more challenges in their lives tended to have poorer health. Participants acknowledged the compounding burden of environmental, physical, and mental health challenges in their communities.



- In addition to environmental concerns, Southern Delaware County residents often face many other challenges (e.g., limited financial resources and food insecurity).
- *“I think that's how like it all comes together. It's like in a circle. Like a domino effect. The air is bad. You become sick. Your family becomes sick, you can't work. and you can't go to work because you can't pay anybody because you keep calling off from work...” – Participant 22*

Strengths & Assets

Participants were proud of their communities and felt a strong connection and support from other community members.

- Community members stay in the area because when their neighbors experience the impact of various environmental, physical, and mental health factors, they show up for one another.
- Neighbors are swift in their responses to support their fellow community members.
- Most focus group participants noted the care shown by others in their boroughs and emphasized how they felt very supported in their communities.

"What I'm proud about [...] is the diversity that we have here." - Participant 1

" The community does really come together when there's events for families in need." - Participant 4

"Everyone knows everybody. And for the most part, everyone looks out for each other" - Participant 20

Recommendations and Next Steps

Policymakers

- Environmental approval processes, which must:

  a) Consider existing pollution sources as well as community-level environmental and public health data

  b) Require permit applicants to demonstrate how any proposals for new and expanding infrastructure will mitigate and not exacerbate existing environmental and public health stressors

- Implement or expand air, odor, and noise monitoring programs in SoDelCo and develop mitigation plans as needed.

Community organizations and advocates

- Organize and educate community members and grassroots community groups on key findings to empower change with policy and permitting procedures to be inclusive of cumulative burdens
- Educate local officials, community groups, and other residents about existing cumulative impact laws and policies in the US

Academic researchers

- Expand consideration of health outcomes to include sub-diagnostic measures of health (e.g., symptoms rather than medical diagnoses alone)
- Broaden concepts of health to include measures of mental health and well-being

Next steps include an advocacy campaign to pursue state-level cumulative impacts legislation.

Acknowledgements

Study Team

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CHARMED
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