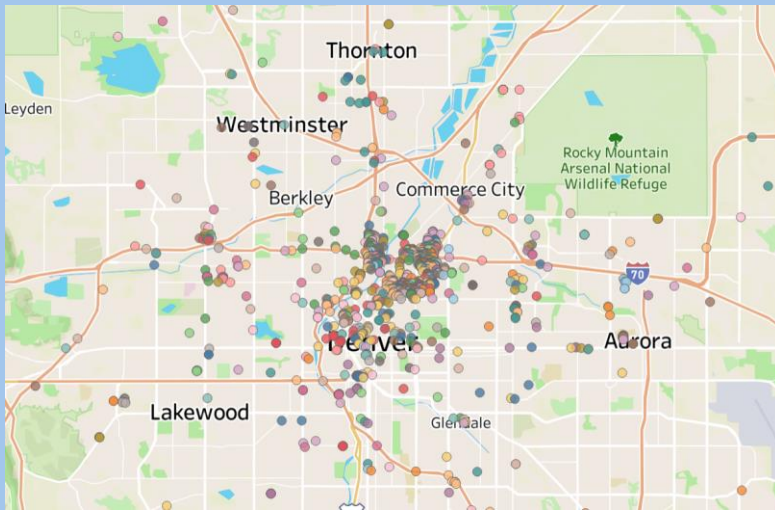


SJEQ-D Study Summary for Cohorts 1 & 2

The Social Justice and Environmental Quality – Denver (SJEQ-D) study is working to improve indoor air quality in the Denver communities of Globeville, Elyria-Swansea, Cole, and Clayton.

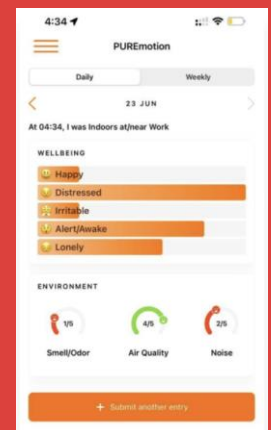
Thank you to the **88 community scientists** from Cohort 1 in winter 2022 and the **97 participants** from Cohort 2 in summer 2022!



Residents have been submitting answers about daily activities and health/wellbeing through PUREmotion, a smartphone app. This map shows where users have been submitting their entries, which helps our research team understand air quality both in the neighborhoods of study as well as in comparison to other parts of the Denver Metro area.

Participants have submitted around **2,000 entries per cohort** in PUREmotion! From that data, we have learned that:

- Participants from Cohort 1 on average rated smell odor as 2.45 out of 5, air quality as 2.37 out of 5, and noise as 2.45 out of 5
- Participants from Cohort 2 on average rated smell odor as 2.31 out of 5, air quality as 2.19 out of 5, and noise as 2.17 out of 5
- Car is the most popular transportation choice, followed by walking
 - Dustiness was the top reported air quality concern
- Users reported more allergy symptoms during summer than winter



Cohort/Emotion	Cohort 1	Cohort 2
Happy	2.89	2.86
Irritable	0.85	0.91
Distressed	0.96	1.01
Alert/Awake	2.52	2.49
Lonely	0.84	0.76

Emotional Index

The table on the left represents the average answer to each emotion reported within the PUREmotion app for each cohort (on a scale where 0 is not at all and 5 is completely).

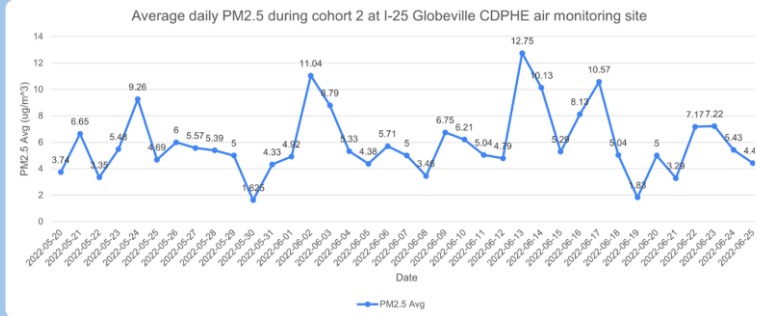
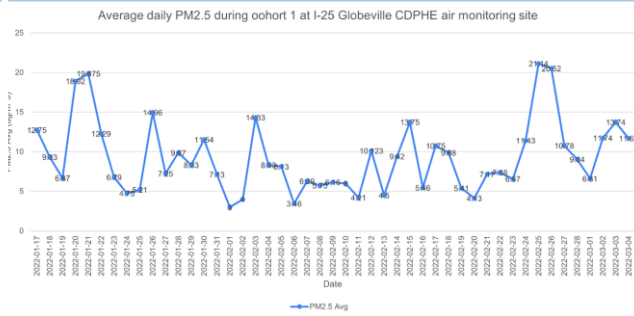
Looking at this information about emotions across different cohorts alongside the reported experiences of construction disruption will help us analyze whether there are any impacts on wellbeing.

Compare Air Quality from Neighborhood Sensors to Community Scientist Study Data

PM is particulate matter – solid particles found in the air such as dust, dirt, soot and smoke. PM_{2.5} is the concern for health because they are small particles that can be inhaled and cause health problems. The Environmental Protection Agency has an annual standard of 12 ug/m³ limit they recommend, with a 24-hour standard of 35 ug/m³.

This plots below shows the average daily PM_{2.5} from the Colorado Department of Public Health and Environment's (CDPHE) air monitoring site at i25 in Globeville during Cohorts 1 & 2. As you can see on the plots below:

- In January-February 2022, ten days exceeded the annual standard of 12 ug/m³.
- In May-June 2022, only one day exceeded the annual standard of 12 ug/m³.



Cohort 1 & 2 Data from Community Scientists: Average Daily PM_{2.5}

This plot shows the daily average PM_{2.5} for all Atmotube data collected by study participants cohorts 1 and 2. The x-axis shows each day of the month and the y-axis show the average PM_{2.5} in the unit of microgram per cubic meter (ug/m³). As the plots show the average of PM_{2.5} is lower during cohort 2 compared to cohort 1.

