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Prioritizing Environmental Hazards Through Focus Groups in NPU-V and Proctor Creek Watershed, Atlanta, Georgia

Molly Dunham-Friel

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Prioritizing Environmental Hazards Through Focus Groups
In NPU-V and Proctor Creek Watershed, Atlanta, Georgia

By

Molly Morgan Dunham-Friel

B.S., University of Vermont

A Capstone Submitted to the Graduate Faculty
Of Georgia State University in Partial Fulfillment
Of the
Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA
30303
ABSTRACT
Prioritizing Environmental Hazards Through Focus Groups
In NPU-V and Proctor Creek Watershed, Atlanta, Georgia

By:
Molly Morgan Dunham-Friel
July 2016

INTRODUCTION: This study set out to gather data on residents’ opinions of the community environmental conditions in Neighborhood Planning Unit-V (NPU-V) and Proctor Creek Watershed (PCW) in Atlanta. This research built on previous research conducted in these Atlanta communities. This research provides a prioritized list of environmental hazards and concerns of residents living in NPU-V and PCW, in order to inform further scientific research, education, and exposure reduction strategies.

AIM: To understand and prioritize environmental health concerns in NPU-V and PCW as voiced by community residents.

METHODS: With approval from the Georgia State University Institutional Review Board (IRB), we organized and conducted three community focus groups. Community organizations provided space for focus groups and assisted with recruitment of volunteers through posting flyers, electronic notices, and person-to-person outreach. The focus groups were held in June and July, 2016. The researchers asked a series of questions in an open-ended format and asked each participant to complete a short evaluation at the end of the focus group. Responses were recorded in Microsoft Excel.

RESULTS: The community members identified air quality, water quality, drinking water, flooding, dust/pollution in homes and brownfields as their highest priorities. The top three prioritized health hazards identified by the community members were flooding, air quality/pollution, and brownfields. The health hazards that were discussed were cancer, asthma, other respiratory illnesses, emphysema, diabetes, and hypertension, with an emphasis on asthma and cancer. The community showed great interest in being provided data on their community’s brownfield composition and child asthma rates. The prioritized list of environmental hazards that were discussed most frequently by the residents were flooding, air pollution, and brownfields.

DISCUSSION: The findings from this research suggest that while residents have many environmental health concerns, the three issues that resurfaced frequently were: flooding, air pollution, and brownfields. These are the prioritized environmental hazards that the community identified and are seeking solutions. The results of this focus group can inform future environmental health research in Atlanta and provide preliminary research for grant funding applications.
Prioritizing Environmental Hazards Through Focus Groups
In NPU-V and Proctor Creek Watershed, Atlanta, Georgia

By

Molly Morgan Dunham-Friel

Approved:

________________________
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July 2016
Acknowledgments

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Author’s Statement Page

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Molly Morgan Dunham-Friel
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1. INTRODUCTION

Community-based participatory research (CBPR) integrates academic and community knowledge and requires a strong partnership. CBPR is designed to benefit the community partners and the academic researchers. CBPR allows for community involvement in the research process and provides a unique set of data. This study used focus groups as a part of the CBPR process, to gather first-hand data on the opinions of residents living in two communities in Atlanta, Georgia: Neighborhood Planning Unit V (NPU-V) and Proctor Creek Watershed (PCW). Using this approach helped the target communities and Georgia State University identify environmental health hazards.

Focus groups were used to provide qualitative data to assist in creating a solution to the environmental hazards in the NPU-V and PCW communities. In addition, this study collected data from publicly available sources, alongside the focus group findings. This study built off of existing connections between Georgia State University faculty and the identified communities, along with the known environmental, health, and socio-economic challenges in these areas.

The two target communities are characterized by high rates of poverty, low income, and low access to healthy food. These communities have a substantial land area at a lower elevation compared to nearby downtown Atlanta, which puts them at risk for flooding and exposure to polluted runoff. NPU-V is located south of downtown Atlanta and is split by two major expressways (Interstate-20 and Interstate-75/85). It includes the following neighborhoods: Mechanicsville, Pittsburgh, Adair Park, Capital Gateway, Summerhill, and Peoplestown. The PCW community is located west of downtown Atlanta and is also close to
Interstate-20 and Interstate 285. The PCW area includes the following neighborhoods: English Avenue, Mozley Park, Vine City, West Highlands and Bankhead. The PCW is an urban waterway that originates near downtown Atlanta and flows northwest, into the Chattahoochee River. Proctor Creek was designated as a priority urban waters by the Environmental Protection Agency (EPA) in 2013 (Proctor Creek Watershed, 2016).

On March 1, 2016, Georgia State University faculty and community members held a conversation with a small group of NPU-V community members about their environmental health concerns. The concerns that were raised included: water runoff, air quality near highways, brownfields, dust, drinking water quality, air pollution, and home hazards such as lead and asbestos. The major health hazards discussed were the incidence of asthma in both adults and children. This conversation supported the need for a broader community partnership and the collection of residents’ environmental health hazard concerns.

Due to the location, geography, and socio-demographic disposition of these communities, further community research was needed. The use of CBPR in environmental research has been shown to have positive outcomes for the community and research (Kreuter et al, 2012). The residents of these communities have firsthand knowledge of environmental hazards, as they come in contact with them daily and have experienced health concerns. One way to gain knowledge and understanding of the environmental hazards in a community is to use a CBPR approach.

Engaging the community in this project collected their opinions but also facilitated their participation in improving the environment in which they live. This study identified environmental hazards by conducting focus groups with community residents to generate a
prioritized list. The purpose of this study was to identify environmental hazards through publicly available datasets and through focus groups in the community, as components of CBPR.

1.1 Literature Review

Community-Based Participatory Research

CBPR enables universities to work closely with diverse communities through coalition building. In public health the intent behind most CBPR is to integrate community involvement into all facets of the research process so that research is directed according to community needs, community participation is ensured and results are communicated to local stakeholders. CBPR is increasingly used in public health research to achieve a greater understanding of the community than other methods would (Israel et al, 2010). According to Israel and colleagues, the request for community-academic partnerships has increased and enhanced the capacity of partners in eliminating health disparities, through the use of CBPR (Israel et al, 2010). The following review of literature around past community-based participatory research and environmental health research will explore and demonstrate the strength of this research method.

O’Toole et al described the benefits of using CBPR and rationale for researchers to consider adopting the CBPR method, stating that CBPR is, “appropriate and applicable across disciplines and within many diverse community settings; the potential for CBPR to make meaningful contributions to improving the health and well-being of traditionally disenfranchised population groups and communities is very real and, in many instances, being realized; and we need to do a better job of articulating CBPR to our peers and colleagues as
“research-plus” that is both methodologically rigorous and that makes unique contributions not possible using other means” (O’Toole, 2003).

Due to the increased recognition surrounding health disparities in the medical, academic and public health fields, there has been an increased effort and focus on health initiatives at the community level, including the use of CBPR (Israel et al, 2005). There is a wide range of community-based efforts that exist to promote health. CBPR can be conducted to better understand community needs, foster community improvement, solution development and sustainability.

CBPR can be defined as a “collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings” (Xia et al, 2016). “CBPR begins with a research topic of importance to the community and has the aim of combining knowledge with action and achieving social change to improve health outcomes and eliminate health disparities” (Xia et al, 2016). Unlike typical research, CBPR aids the community through equitable collaboration with academic partners (Israel et al, 2010). The use of CBPR is likely to create better health outcomes while strengthening community partnerships, research, and process evaluation. Conducting this type of research is typically a collaboration where both partners learn and gain what they need through the research being conducted together (Israel et al, 2010). CBPR has the ability to incorporate environmental, social, physical, psychological, cultural and structural frameworks into one body of research and data collection. The involvement of the community in this type of research shows promise for improving the quality of life and health in that population, along with creating meaningful outcomes and changes.
A CBPR initiative is mutually agreed upon and benefits all partners (Xia et al, 2016). The researchers commonly bring scientific knowledge and expertise to the community while the community provides the researchers with practical knowledge and feedback that only the community members have. Both groups analyze the results and determine together the best outcome and solution. Community concerns may be different from those expected by researchers. For example, a researcher may go into a CBPR project examining teen pregnancy in a community but come out learning that a bigger concern is opioid overdose (Israel et al, 2005). Without CBPR public health lessons can be missed on the community level. The core CBPR principles outlined by Israel et al are community recognition, community strengths, collaboration, mutual benefit, health and positive perspectives (Israel et al, 2005). The above principles are an example of a framework for conducting CBPR and how to approach the community.

Given this framework D’Alonzo outlined steps to begin a CBPR project, which include getting the community engaged, creating a community advisory board, outreach and extension into the community and community engagement in the identification of the problem (D’Alonzo, 2010).

CBPR in Environmental Health Research

Engaging communities in environmental health research has long been an area of focus (Haynes et al, 2016). As noted by the 2014 Institute of Medicine roundtable, “federal funding agencies increasingly support stakeholder participation in environmental health research” (Haynes et al, 2016). Not only was the topic of support addressed by the Institute of Medicine but also by The National Institute of Environmental Health Sciences (NIEHS) (Haynes et al,
Evidence has continued to show that the environment has an impact on the physical and mental health of residents (Srinivasan et al, 2003). Due to the complexity of the built environment and the influence on human health, a community-based approach is advantageous in order to understand the issues on multiple levels.

After the EPA released the 2010 Air Toxics Report, the superintendent of East Liverpool Public Schools requested that hair metal level tests be conducted on school-aged children (Haynes et al, 2016). In an effort to understand the exposure to toxins in the environment of school-aged children, the community was trained to conduct testing. This research enabled the researchers to collect biological information, involve the community in the testing process and translate the results to community (Haynes et al, 2016).

CBPR serves the community involved but can also inform and impact larger communities and policy-making. Carcari-Stone et al investigated two CBPR projects in California between 2008 and 2010 in order to demonstrate how CBPR relates to policy and the promotion of healthy communities (Carcari-Stone et al, 2014). One of the community-based studies worked with a highly polluted community that had high rates of asthma and respiratory illnesses. Community workers did door to door interviewing to collect testimonials. In addition to the testimonials, the Southern California Environmental Health Sciences Center created GIS maps of the target area. This research aided in the passing of an ordinance to eliminate polluting industries in the affected area and the development of a public health plan on health impacts to further inform city decision making (Carcari-Stone et al, 2014).

The second community-based project involved testimonies from residents at town hall meetings addressing the air quality in the Los Angeles-Long Beach area, where a great deal of
trade movement occurred. These meetings dated back to 2001. With a combination of scientific partners, the community and community data collection this research was able to inform policy. The prominent movement that evolved from this CBPR project was the Clean Air Action Plan in 2006 (Cacari-Stone et al, 2014).

Both of these examples demonstrate how a CBPR approach goes beyond helping project participants and can have a positive impact on a community. These types of research projects set the standard for the need and benefit of CBPR.

As noted above, CBPR within the environmental health field has had a positive impact on the communities involved and policy. Environmental health research can be conducted on the community level effectively when involving community members, researchers, academics and governmental agencies as equal partners. Ponder-Brookins et al explains community involvement in CBPR as being the key recruiters to identify appropriate participants and active members of the research team assisting in establishing the research direction (Ponder-Brookins, 2014). Ponder-Brookins et al then describes the implications for more CBPR after conducting a pilot study comparing green space and conventionally built urban housing for low-income senior citizens (Ponder-Brookins et al, 2014).

Ponder-Brookins and colleagues’ conducted a pilot study collaborating with academic, governmental, nonprofit and community-based organizations in order to inform the research question. The collaborative effort made this project possible and illustrates how multidisciplinary teams can produce quality CBPR. This project produced recommendations for the senior living facilities and residence along with articulating how to improve CBPR in the area of environmental health research.
Environmental Justice

Some communities are disproportionately affected by pollutants and may have higher levels of environmental exposures and risks than other communities (Zartarian et al, 2011). The communities that are experiencing higher rates of environmental risk do not always have access to the educational information and resources needed to mitigate the risks (Zartarian et al, 2011). The 2004 Environmental Protection Agency (EPA) National Environmental Justice Advisory Council Cumulative Risk report was created to highlight the issues within communities that have been characterized as having a disproportionate risk to environmental exposures. What resulted from the advisory committee was the creation of the Community-Focused Exposure and Risk Screening Tool (CFERST). This is a geographic information system with an environmental resource tool that assists with community-level exposure and risk assessment through the use of case studies (Zartarian et al, 2011). This tool can be used to support environmental justice initiatives and provides environmental scientists with a tool to captures community-level data.

Cushing and colleagues report that “communities of color in the United States often reside in neighborhoods with worse air quality, more environmental hazards, and fewer health-promoting environmental amenities such as parks” (Cushing et al, 2015). Research in California has shown that communities of color have greater cancer risk rates due to exposure to toxins in the community, but less is known about the extent to which communities of color are exposed to multiple pollutants and what specific implications those exposures have on the community exposed. Cushing and colleagues used an environmental justice tool to screen communities in California for environmental hazards in order to see the distribution difference among racial
groups. The results of the study showed, “that environmental health hazards disproportionately burden communities of color in California” (Cushing et al, 2015).

Cushing measured environmental hazards in the community. White and Hall measured community member’s perceptions of the environmental health risks in Southeast Chicago, Illinois. Two communities in Southeast Chicago are surrounded by so many hazardous facilities that they categorize the area as a “toxic doughnut.” White and Hall administered a questionnaire to 42 residents within the “toxic doughnut” to assess their perceptions of the environmental health risks (White and Hall, 2015). The results of the community questionnaire found that dumping of hazardous waste, chemicals and landfills were viewed as the greatest environmental health threats. While the majority of respondents had little confidence in government agencies, the community did believe most of the environmental issues had the potential for remediation. Integrating the attitudes and beliefs of the residents was done to improve the local community efforts and to provide a foundation for community-based environmental health assessment in this community (White and Hall, 2015).

**Focus Groups and Qualitative Analysis**

Focus groups are used to gain data, information and opinions from a selected population. The participants are asked questions in a group setting to facilitate discussion and opinion sharing. Focus groups can be used in a variety of different research settings, including public and environmental health research.

Focus group data is qualitative. To analyze and generalize the focus group results a qualitative analysis method must be used. Categorizing and grouping focus group results is an analysis method commonly used by qualitative researchers. A qualitative study by Wagner and
colleagues used a thematic grouping method to analyze focus group responses (Wagner et al, 2016). The grouping of qualitative, focus group results allows the researcher to develop themes and strategies from the data. Kreuger referenced the use of arranging and grouping focus group results in order to categorize the focus group findings (Kreuger, 2002). These analysis methods assist the researchers in determining focus group outcomes.

Community-Based Participatory Research in Atlanta Georgia’s NPU-V

In 2012 Kreuter and colleagues conducted a retrospective case study involving CBPR in NPU-V in Atlanta, Georgia. This was a multifaceted study that included medical diagnosis review, GIS mapping of disease prevalence, Photovoice, housing vacancy analysis, and community sharing sessions. Taking a community approach when researching a lower income area such as NPU-V is crucial in gaining the respect of the residents and building a lasting relationship that aid in positive change for the residents through the academic/community partnership.

This study began by holding community sharing sessions where community members were able to answer questions to help the researchers better understand the residents’ concerns for health and their living environment. Then trained residents conducted Photovoice in the community. The photographs were then combined with existing data to create a greater awareness of the cause and effect of what was found in the pictures. One example of what was found was that “42% of all properties in NPU-V were vacant or unoccupied” (Kreuter et al, 2012). In addition to the community feedback and Photovoice projects, medical diagnosis data in 2004 and 2005 were collected from Southside Medical Center to understand the most common diagnoses among NPU-V residents. The top three diagnoses for males in NPU-V were
hypertension, acute upper respiratory infection, and diabetes. The top three diagnoses for females in NPU-V were found to be hypertension, diabetes and inflammation of cervix or vagina (Kreuter et al, 2012).

The results of this study illustrated the positive impact this research had on the community. The vacant housing project through the use of Photovoice and the “Dirty Truth” Campaign had such a positive response in the community that after the initial grant funding ended the “Dirty Truth” received non-profit status. Policy recommendations were made to help non-profits in the NPU re-use the vacant properties and to address the problem of these vacant and poor housing areas in close proximity to schools, parks and children’s areas (Kreuter et al, 2012). The community health workers that were employed with this project all maintained employment with other community groups after the research projects grant funding had ended. This is a positive social and economic impact on residents in NPU-V and illustrates the positive impact a CBPR approach can directly have on the community in addition to the data and knowledge acquired through the process.

The literature demonstrates the usefulness of CBPR across disciplines and especially in environmental health research. The literature has also shown great progress in CBPR in the field of environmental health, environmental justice, and public health. The benefits of research conducted through CBPR have shown to go beyond the means of traditional research. CBPR has great potential to change communities and impact the institutions of environmental and public health.
2.0 METHODS

This project used focus groups with community members to collect environmental hazard concerns. The focus groups were followed by a written evaluation of environmental and health hazards. In addition to collecting data from community residents, this study reviewed publicly available data. The environmental, food access, and health data was sourced from online governmental agencies, to produce credible results. The health disparities and demographic data was collected from online resources that were found to have the most recent data that met the needs of this project. The data were collected from the Environmental Protection Agency (EPA), the Georgia Department of Public Health (GDPH), Community Commons, United States Department of Agriculture (USDA) and City Data. The online resources allowed for data manipulation and map creation through the online portals. All maps were created within the resources website.

To receive approval from the Georgia State University Institutional Review Board the following documents were created and submitted: informed consent form, focus group questions, recruitment flyers, individual evaluation questionnaire and study protocol. After receiving approval from the Georgia State University Institutional Review Board, two focus groups were set up in NPU-V and one in the PCW community.

To collect the opinions of the residents in the target communities, separate focus groups were scheduled at the Metropolitan Branch Library, Southside Medical Center, and The Atlanta Community Food Bank. The community organizations donated the use of space for the focus group meetings. Participants were recruited with flyers throughout the communities, promotion at NPU meetings, email, and word of mouth.
Each participant signed a consent form prior to the beginning of the focus group (Appendix 1). During the focus groups, the researchers posed questions to the group of participants and encouraged group discussion. The questions can be found in Appendix 2. After each focus group was completed, participants filled out an evaluation form individually (Appendix 3). Qualitative data was recorded during the session through multiple sets of written notes. Following completion of the focus groups, data was entered into an Excel spreadsheet for analysis.

The ranking of environmental hazards was done by calculating how often the environmental or health hazard was raised as a concern during the focus group and on the evaluation. Analysis also included grouping responses and categorizing themes from the responses. This is a common technique for focus group data analysis. Krueger from the University of Minnesota referenced the use of grouping responses into categories for analysis of results, in his paper on Designing and Conducting Focus Group Interviews (Krueger, 2002). The main categories addressed were air, land, and water. The air was categorized by air pollution, air quality or breathing air. Water was categorized by drinking water, water runoff, and flooding. Water runoff was grouped together with flooding. Land was categorized as land pollution, soil contamination, brownfield or landfill. The focus group only had one question about health hazards so those responses were counted individually based on the number of responses. The results were drawn from both the responses received in the individual evaluations and responses during the focus groups.
3.0 RESULTS

3.1 Study Areas

The target communities in this study are low income, with the median household income being far below the state and city average, along with having a much larger population living below poverty. These communities’ have a high concentration of African-American residents. Demographic data are shown in Table 1. In addition to the information in Table 1, Figure 1, highlights the areas within NPU-V and PCW that have 50% or more of the population living below the poverty level and 25% or more with less than a high school diploma. Figure 1 shows the vulnerability of the target communities.

Table 1: NPU-V & Proctor Creek Demographics (2013)

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>30310 NPU-V</th>
<th>30312 NPU-V</th>
<th>30315 NPU-V</th>
<th>30314 PCW</th>
<th>State of Georgia</th>
<th>Atlanta, GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Fulton</td>
<td>Fulton</td>
<td>99.35% Fulton .65% DeKalb</td>
<td>Fulton</td>
<td>N/A</td>
<td>Fulton, DeKalb</td>
</tr>
<tr>
<td>Estimated Population</td>
<td>27,775</td>
<td>19,644</td>
<td>33,248</td>
<td>22,020</td>
<td>10,379,084</td>
<td>456,002</td>
</tr>
<tr>
<td>Sex</td>
<td>48.1% Female 51.9% Male</td>
<td>51.7% Female 48.3% Male</td>
<td>50.8% Female 49.2% Male</td>
<td>51% Female 48.9% Male</td>
<td>50.8% Female 49.2% Male</td>
<td>49.8% Female 50.2% Male</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>86.9% Black 5.7% White 1.7% Hispanic/Latino</td>
<td>54.6% Black 34.6% White 5.1% Hispanic/Latino</td>
<td>80.9% Black 10.3% White 8.1% Hispanic/Latino</td>
<td>94.4% Black 59.7% White 8.8% Hispanic/Latino</td>
<td>30.5% Black 59.7% White 8.8% Hispanic/Latino</td>
<td>51.5% Black 37% White 5.4% Hispanic/Latino</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$22,861</td>
<td>$39,105</td>
<td>$20,951</td>
<td>$23,649</td>
<td>$47,829</td>
<td>$46,485</td>
</tr>
<tr>
<td>Percent population income below poverty level</td>
<td>38.4%</td>
<td>29.6%</td>
<td>44.1%</td>
<td>36.6%</td>
<td>19%</td>
<td>29.5%</td>
</tr>
<tr>
<td>Percent population with income below 50% of poverty level</td>
<td>19.7%</td>
<td>12.3%</td>
<td>20.0%</td>
<td>18.4%</td>
<td>10.1%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Land Area</td>
<td>8.8 square miles</td>
<td>3.4 square miles</td>
<td>11.3 square miles</td>
<td>4.7 square miles</td>
<td>59,425 square miles</td>
<td>132.4 square miles</td>
</tr>
</tbody>
</table>

Title: NPU-V & PCW Demographic Information (2013)
Organization/Source: www.city-data.com
Page Number: 20-21

**Figure 1: Vulnerable Communities According to the U.S. Census American Community Survey 2010-2014**

Source: [Communitycommons.org](http://Communitycommons.org)
Title: Vulnerable Communities
Organization: Community Commons
Page Number: 21
3.2 HEALTH

The environment in which individuals and community members reside impacts health. Various environmental exposures can lead to different types of health complications. It is important to investigate health statistics in the target community, to better understand what diseases are posing a threat. Fulton County statistics were found to be the most accessible in representing recent health data. The metric that the Department of Public Health used was years of potential life lost (YPLL). This is a common metric used within the field of Public Health and estimates the number of years persons would have lived if not for premature death. This measure illustrates not only the years lost but the potential for improvement and the emphasis on loss of youth and productive adults.

The leading causes of death in Fulton County in 2014 based on the years of potential life lost (YPLL) were perinatal conditions, assault/homicide, ischemic heart and vascular disease, accidental poisoning and exposure to noxious substances, hypertension and hypertensive renal and heart disease, suicide, motor vehicle crashes, malignant neoplasms of the trachea, bronchus and lung, HIV and cerebrovascular disease. Accidental poisoning and malignant neoplasms of the trachea, bronchus and lung could be related to environmental exposures (Georgia Department of Public Health, 2014).

Asthma is a respiratory disease and the environment has been an associated factor in the incidence of asthma cases. Figure 2 illustrates the number of Emergency Room (ER) visits for any type of respiratory disease in 2014 in Fulton County, GA. Fulton and DeKalb County (shaded with dark orange) had the highest number of ER visits for respiratory diseases among North Georgia counties in 2014 (Georgia Department of Public Health, 2014).
Figure 2: Number of ER visits by County for Respiratory Diseases in 2014

The two target communities are primarily located in Fulton County, shown in the dark orange/brown color for having the highest number of ER visits in 2014 for Respiratory illnesses.

Source: (Georgia Department of Public Health, 2014)

Figure 3 shows the number of Emergency Room visits for respiratory diseases by census track which helps identify the rates in the specific target population for this research. The majority of the target areas for this study is shaded in orange, representing approximately 1,000 ER visits for respiratory diseases alone, between 2010 and 2014. The target areas are within the parameters of the black boxes shown on the map. There is a small part of the PCW area shaded in the darker orange and representing approximately 1,500 ER visits for respiratory disease related issues.
3.3 FOOD DESERTS

Access to healthy, fresh food is largely due to a lack of local grocery stores and farmers’ markets that carry affordable items (USDA, 2013). Not having access to healthy, fresh foods can lead to many comorbidities including childhood obesity and diabetes. It is important to consider food access as an environmental factor because it is a crucial component of preventing disease and keeping a community healthy. The United States Department of Agriculture (USDA) classifies a community as low-access or a food desert when at least 500 people or 33% of the census tract live more than one mile from a large grocery store.

The majority of the target area (NPU-V and PCW) are considered food deserts by the USDA. Figure 4 depicts the areas that are low-income and have low access to food. Both NPU-V and PCW are classified as food desert areas. The NPU-V area has a significant number of households with low vehicle and supermarket access. The areas of NPU-V and PCW in orange show that a significant number of residents have more than ½ a mile to travel to a supermarket and more than 1 mile for the areas shaded in green. The areas shaded in yellow have households with low vehicle access. The USDA has distinct classifications and criteria for rural and urban areas. The target areas for this research are both classified as urban. For full representation, Figure 4 shows all USDA classifications.
The food options within NPU-V and PCW are limited to corner stores and food marts. The corner stores and food marts, which typically do not have fresh or healthy food options.

**Figure 4: USDA Map of low income and low access to food map of Metro-Atlanta area**

Source: (United States Department of Agriculture Economic Research Service, 2013)
Title: USDA Map of Low Income and Low Access Areas of Metro-Atlanta
Organization: United States Department of Agriculture Economic Research Service
Page Number: 25

### 3.4 ENVIRONMENTAL POLLUTION DATA

The United States Environmental Protection Agency (EPA) provides reports on environmental pollution, hazardous releases, and health risks. The data from the EPA show that between 2013 and 2014, Fulton County air quality index qualified as moderate, opposed to good 36% of the time. Between 2009 and 2012, 11.7% of the time the air quality was determined to be unhealthy for certain populations and .8% of the time it was classified as unhealthy. In addition, the EPA classified all rivers in NPU-V and PCW as impaired meaning that residents should not consume fish from those rivers.
Figure 5 below shows Toxic Release Inventory (TRI) releases to the air, water, and land within NPU-V and PCW. The boxes with a rain drop represent toxic release to the water, the boxes with the cloud represent toxic release to the air and the green boxes represent toxic release to the land. This map illustrated where the toxic releases occur in the NPU-V and PCW communities.

**Figure 5: Map of Hazardous Releases to Air, Water, and Land, from Toxic Release Inventory**

**Figure 5 & 6 Legend**

- **Rain Drop**: Toxic release to water
- **Cloud**: Toxic release to the air
- **Green box**: Toxic release to the land

**Source**: (EPA National-Scale Air Toxics Assessment, 2005)

Figure 6 depicts the total cancer risk per one million people for each area, determined by the 2005 National-Scale Air Toxics Assessment (NATA). The target population for this study...
is primarily located where the cancer risk is 75-150 million people. The cancer risk is high in the same areas hazardous waste was reported.

Figure 6: Map of Cancer Risk per Million People, from Toxic Release Inventory

Source: (EPA National-Scale Air Toxics Assessment, 2005)
Title: Map of Hazardous releases to Air, Water and Land from Toxic Release Inventory and Cancer Risk per Million People
Organization: Environmental Protection Agency and National-Scale Air Toxic Assessment
Page Number: 25-26

Environmental Health Findings Related to Research Area

Asthma: Percent of children in Fulton County, Georgia with asthma: 10.8%. Compared to the national average of 8.4%. (2013 Statistics)

Air Quality (Ozone): According to the EPA’s Air Quality Index, Fulton County experiences unhealthy levels of ozone at the ground level. In 2011 Fulton County experienced 15 days of unhealthy ozone levels.
Air Quality (Particulate Matter): The annual ambient concentration of PM$_{2.5}$ was 12.4µg$^3$ in 2013, which is slightly above the national standard.

Source: (http://ephtracking.cdc.gov/InfoByLocation/)

3.5 Focus Group Results

Of the three focus groups scheduled, only one was attended by community members. The focus group at Southside Medical Center, on June 21, 2016 was attended by 12 community members. The two other focus groups were on June 15, 2016, at the Atlanta Metropolitan Library and on July 5, 2016, at the Atlanta Community Food Bank.

Residents identified multiple community environmental hazards. The community members identified air quality, water quality, drinking water, flooding, dust/pollution in homes and brownfields as their highest priorities. The top three hazards that were discussed during the focus group were flooding, air pollution, and brownfields. The scribed notes indicated that flooding was discussed the most and was mentioned five different times. Air pollution was mentioned four different times along with brownfields. The ranking of air pollution over brownfields is due to the greater response rate for air pollution concerns on the focus group evaluation form.

The health hazards that were discussed were cancer, asthma, other respiratory illnesses, emphysema, diabetes, and hypertension, with an emphasis on asthma and cancer. The prioritized list of environmental hazards can be found in Table 2. The community showed great interest in receiving data on their community’s brownfield composition and child asthma rates. They also asked for youth and public education on viruses and common ways to combat mosquito populations. The concern the focus group participants had for the youth population
were youth playing near trash and contamination, quality of drinking water in schools, construction in schools, access to fresh/healthy foods for youth. When asked what the participants would change if they had the power, the responses were: quality of life, homelessness, vacant properties, the building of community gardens and bringing back the vibrant community feel that residents years ago had in the area.

Categorized below are topics brought up by community members during the focus group.

**Environmental hazards of concern:**
- Vacant lots
- Trash
- Kudzu
- Asbestos
- Mosquito infestations
- Diesel fumes, trucks idling
- Black dust/soot in homes
- Chemicals used to clean black dust
- Contaminated areas
- Illegal dumping
- Leaking gas lines
- Flooding
- Mold, mushrooms in homes
- Gas fumes/smells
- Children playing in asbestos-ridden areas
- Brownfields
- Brownfields near schools
- Lead pipes
- Lead paint

**Health Concerns pertaining to the environment:**
- Asthma
- Cancer
- Respiratory diseases
- Emphysema
- Lack of access to healthy food, especially for children
- Diabetes
- Hypertension
- Attention issues in youth
- HIV
- Heat-related illnesses
- Mental health
- Kidney disease

**Environmental hazards in homes:**
- Lead paint (inside/outside)
- Poor water quality (brown water)-not drinkable
- Excess use and need for pesticides
- Lawn chemicals and residual runoff
- Poor ventilation and air quality
- Kudzu
- Raw sewage coming into the house
- Lack of handicap or older adult housing equipment/accessibility
Table 2: Top Three Environmental Concerns Identified in Focus Group Conducted in NPU-V

<table>
<thead>
<tr>
<th>Environmental Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Flooding</td>
</tr>
<tr>
<td>2.) Air pollution</td>
</tr>
<tr>
<td>3.) Brownfield</td>
</tr>
</tbody>
</table>

3.6 Evaluation Results

Following the completion of the discussion period, participants were asked to fill out a short evaluation that had questions about the environment and about the focus group experience. Of the 12 attendees, 10 chose to participate. The majority of the evaluations were not filled out to completion.

Seven respondents filled out the question, “what do you think are the top 3 environmental hazards in your community?” Of those 7 respondents, 4 listed flooding as an environmental concern (57%). Of the same 7 respondents, 5 listed air quality/pollution (71%) and 4 listed brownfield/land pollution (57%). When asked to pick one environmental hazard only 6 respondents only selected an answer. From the answers provided 57% of respondents said air pollution outdoors was the biggest concern.

The results from the focus group evaluation form helped prioritize the environmental hazard list. Flooding was discussed extensively during the focus group and also addressed in the written evaluation, and was ranked first as an environmental hazard. Air quality was discussed in equal detail to brownfields during the focus group and was considered a concern by 71% of
the evaluation respondents, and is listed second in priority. Brownfields were equally as frequent as air pollution and was considered a top hazard on 57% of the evaluations, therefore brownfields received the number 3 ranking.

Table 3. Focus Group Evaluation Response Frequency Table in Rank Order

<table>
<thead>
<tr>
<th>Environmental Hazard</th>
<th>Evaluation Response Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooding</td>
<td>57%</td>
</tr>
<tr>
<td>Air pollution</td>
<td>71%</td>
</tr>
<tr>
<td>Brownfields</td>
<td>57%</td>
</tr>
</tbody>
</table>

Of the nine people who rated their experience with this focus group, eight rated good or great and one person rated ok. That gives the focus group an evaluation score of 88% satisfactory in terms of personal experience.

4. DISCUSSION

The findings from this research suggest that while residents have many environmental health concerns, the three issues that resurfaced most frequently were: flooding, air pollution, and brownfields. These are the prioritized environmental hazards that the community identified and for which they seek solutions. In addition to the environmental concerns, asthma was discussed several times throughout the focus group in relation to the environment. This research provides environmental and health areas of focus.

In addition to voicing environmental and health concerns, the community also expressed their needs. The community provided Georgia State University researchers with a targeted focus on what education they want to receive and what they expect from Georgia
State University researchers in the future. The community needs expressed during the focus group were valid environmental health concerns.

This research helps to inform the community and other researchers on what hazards should be addressed, and in what order. The results will be used to inform future research in these communities and will serve as preliminary research for environmental health grant proposals, which would allow for ecological testing and work toward environmental solutions. Community engagement must continue as this research progresses and the hazards identified need to be considered a priority in order to strengthen the communities trust in Georgia State University as a partner and research institution.

The results of the focus group evaluation showed that the experience the community members had with the GSU research team was positive. Of the evaluation respondents, 88% reported having a “good or great” experience during the focus group, which provides evidence of a positive participant experience. The lack of participation in the two other scheduled focus groups are likely due to scheduling conflicts, time of day and the need for additional community outreach. If the research time frame were longer, collaboration with additional organizations could have been utilized. The condensed timeline of this research required a rapid schedule of focus groups and short recruitment times. These constraints did not allow for much planning for community members or for enough recruitment efforts to be employed.

4.1 Recommendations for the Community

The results from the focus groups and evaluations showed a high degree of concern regarding flooding, air pollution and brownfields in NPU-V. On the City of Atlanta website, residents can nominate brownfields in the priority areas of the city of Atlanta. I recommend
that the community should nominate the brownfields of greatest concern to alert the City of
Atlanta and increase the likelihood of remediation. I believe the community should continue to
engage in research involving focus groups, evaluations, questionnaires and community
participation. I recommend inviting researchers and environmental health leaders to NPU-V
and PCW meetings and to continue to engage in environmental health research discussions.

The community asked for further information to be provided regarding environmental
hazards in the community. That response supports the recommendation to continue to work
with Georgia State University and other academic institutions for further research and
development on improving the environment. Continuing to work together as a community in
the fight to address environmental hazards within NPU-V, will hopefully result in positive
environmental changes. I recommend that the NPU-V leadership reach out to the
environmental health division within the Georgia State University School of Public Health for
future student involvement and intern work, in order to meet the requests of its community
members.

4.2 Georgia State University School of Public Health Follow-Up

The masters of public health students concentrating and interested in the environment
could collect the data that the NPU-V residents have requested. The results from this research
and from the community’s responses/requests suggest that data should be collected on the
specific contaminants in the brownfields in NPU-V. In addition to identifying specific
contaminants in brownfields and share the health related issues associated with those
contaminants. Along with handouts, education and prevention methods can be provided to address mosquito control, virus prevention and general health promotion material for community members. Access to grocery stores was mentioned as a barrier to the NPU-V community. I suggest further research be conducted to better understand the food access issues in these communities and to assist in creating a solution.

Lastly, an effort can be made to put together youth education and programs to get youth in the community involved with the environment. These recommendations were drawn from the community responses when asked what information they would like to have.

REFERENCES


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