An Initial Assessment of a Forgotten Minority Community: Key Informant's Perceptions of Environmental Health in Fresno, Texas

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Abstract

Background. Environmental hazards are increasingly being detected in minority and low-income communities. The Fresno, Texas community is located near Houston, Texas, and many of its residents are ethnic minorities and of low socioeconomic status. While Fresno residents have voiced concerns about long-standing undocumented environmental hazards, the extent to which the concerns were accurate was unclear. As an initial assessment of environmental exposure hazards, key informant interviews of residents and officials were conducted to examine the perceptions of environmental exposures and associated health effects in the Fresno community. Results. The responses about perceived environmental exposures and the extent of access to primary healthcare were similar between residents and officials. The key informants identified inadequate public water supply and possible groundwater contamination as sources of potential environmental exposures and agreed that access to primary healthcare was a major problem in the Fresno area. However, Fresno residents and officials had contrasting perceptions about the overall health of the community, the existence of community-based organizations, strengths and barriers of the community, and how well environmental concerns were addressed. Methods. Qualitative methodology was used to conduct key informant interviews of seven residents and five elected or assigned officials who serve residents of Fresno. An interview guide designed to obtain information on potential environmental hazards and associated health effects was utilized to collect qualitative data that were then utilized to identify recurrent themes and dissimilarities of responses. Conclusions. The responses obtained in this study suggest that potential environmental exposures may be present in this community. However, although residents and officials identified access to primary healthcare as a barrier to residing in Fresno, residents and officials had differing perceptions of the overall heath status of the Fresno community. These findings must be further investigated to develop additional qualitative and quantitative studies that will validate the preliminary findings of this study and begin to accurately measure contaminant levels and health status in Fresno residents.

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Background

Fresno is a rapidly growing, unincorporated community in Fort Bend County, Texas, with long-standing, undocumented environmental concerns. Fort Bend County is one of the fastest growing counties in the nation, and it is ranked among the most ethnically diverse counties in Texas. A diverse population of Hispanic/Latinos (49.9%), African-Americans (26.5%), and White non-Hispanics (21.6%) resides in Fresno, and

approximately 15% of the 6,603 residents are ranked below the poverty level (U.S. Census Bureau, 2000). In recent years, Fresno has been boxed in by expanding, high-dollar residential communities to the south, a landfill to the north, and a growing industry to the west.

Fresno appears to be a good candidate for an environmental health study, given its' demographic profile, its' proximity to a

Superfund site, a landfill, and an airport, and its' history of long-standing community concerns regarding environmental exposures. From 1988 to 2002, Solvent Recovery Services, located 0.2 miles from Fresno, was listed on the Superfund Site Registry. Solvent Recovery Services was a paint solvent recycling plant that closed in 1984, leaving soil contaminated with metals, and semivolatile and volatile organic compounds. Champion Technologies, Inc., which is located in Fresno, is a company that services oilfield exploration. It is monitored by the U.S. Environmental Protection Agency for release and waste trends, and the Environmental Defense Scorecard ranks Champion Technologies in the 40 to 50 percentile for air releases of recognized carcinogens. Dilapidated oil pumps can be found adjacent to homes in this community, and illegal dumping of tires and batteries has also been a problem in the past. Chemical solvents. pesticides. sewage contaminants, and other unknown hazards from the nearby Superfund site, landfill, and the ten additional EPA-regulated facilities in the Fresno community are some of the potential environmental exposures of the Fresno community.

A public water supply has not been established for many of the residents of Fresno, and the quality of water in the Fresno area continues to deteriorate. Private shallow water wells and septic systems must be installed to obtain drinking water and for waste removal. Improper installation or maintenance, as well as, lack of installation of the water wells or septic systems, may increase the risk of environmental exposure or adverse health effects in this community. A recently approved bond election will now provide the funds to begin to establish the necessary infrastructure for supplying public water and wastewater systems to many of the Fresno residents in various phases within a tenyear period. It is important to note that this community has been diligent in their fight to secure funds for public water and wastewater systems by developing the Board of Supervisors of Fort Bend County Fresh Water Supply District No. 1. This board has been successful in informing residents of the benefits and disadvantages of obtaining public water and

wastewater systems and in securing federal grants.

Fresno serves as an ideal community in which to conduct a project focused on potential environmental exposures and their health effects for several reasons: its' demographic profile, its proximity to two Superfund sites and a landfill, plus other long-standing concerns about hazards without environmental proper documentation. In recent years, communities around the country have successfully addressed their environmental justice concerns through community-based participatory research (Israel, Schulz, Parker, & Becker, 2001; Shepard, Northridge, Prakash, & Stover, 2002). Serious inequities disproportionately environmental impact minorities, tribal, and low-income communities in the following areas: pollution and ambient air quality, ground water contamination and unsafe drinking water. proximity to noxious facilities and municipal landfills, illegal dumping, occupational health and safety hazards, use of agricultural and chemicals. unequal enforcement environmental laws (Evans & Kantrowitz, 2002; Lee, 2002; Rene, Daniels, & Martin, 2000; The American Lung Association, 2001: Warren, Walker, & Nathan, 2002).

While the residents of Fresno have expressed concerns about possible harmful environmental exposures, the extent to which these concerns are valid, particularly for the African-American and Hispanic/Latino residents is unclear. The purpose of this study was therefore to assess the perceptions of potential environmental exposures and their health outcomes in the Fresno community by interviewing key informants. A key factor in the success of this project was obtaining accurate information from the members of the Fresno community regarding their personal views on community-based participatory research, potential environmental exposures, how key informants perceived that these environmental hazards could be affecting their health and what community resources were available to hear their concerns. Responses from these key-informant interviews show that Fresno residents and officials have concerns about environmental hazards, as well as the overall

health of their community. This preliminary data should be used in developing a more comprehensive qualitative study to examine the perceptions of minority residents on environmental health concerns.

Methods

Description of Key Informants

The key informants consisted of five Fort Bend County officials and seven Fresno residents. Fresno, which is located in Fort Bend County, has no mayor or city officials that are assigned or elected primarily by the estimated 6,603 residents. Therefore, the officials elected in or assigned to Fort Bend County to represent Fresno residents were utilized in this study. There are four elected officials that primarily represent the constituents of the precinct that Fresno is located in, and nine assigned officials who serve the entire constituency of Fort Bend County. The officials used in this study were both elected and assigned officials of Fort Bend County. The length of time that participating officials represented the Fresno community ranged from two to twenty years. The residents selected as key informants were involved in some capacity in enhancing this community. The length of residence in Fresno for the participants ranged from 3.5 years to 20 years. There were five female participants and seven male participants in the study.

Key Informant Interviews

To assess the Fresno community's perceptions of environmental exposures, as well as, health concerns resulting from these environmental exposures, we conducted a pilot study using key informants. A telephone or in person interview was conducted with key informants. The interviews were recorded on audiotapes if the key informants consented and lasted approximately 20 minutes. Responses were transcribed within 24 hours of the interview to prevent the loss of detail and other important information.

Researchers identified potential key informant interview question topics, and areas of interest were selected to correspond with the objectives of the study. An interview guide consisting of 14 questions was developed to assess the

participant's perception of the following topics: environmental exposures in the community, the handling of environmental concerns, the overall health of the community, accessibility to healthcare, the existence of community-based organizations, sources of community information, recruitment tools, community contacts, and the strengths and barriers of the Fresno community (see Appendix A).

Data Analysis

Qualitative data were collected from the interview responses. The interview data were open-ended to include all responses provided by the participants. Interview responses were transcribed using the exact terminology of the participants to retain their distinct language. The qualitative data were then used to compare and contrast the responses of the officials and residents. Common themes and dissimilarities of responses were also studied. Pattern coding was then used to cluster and detect recurring themes in the responses.

Results

The following six common themes were recurrent among the key informants: lack of education, low-incomes, inadequate water supply or water quality, improper installation and maintenance of septic systems, lack of access to healthcare, and no community organizations to motivate and facilitate the enhancement of the Fresno community. The most overwhelming environmental exposure concern of the key informants was the inadequacy of the water supply. The key informants suspected that water contamination was caused by sewage contamination and unknown water contaminants that rendered the water undrinkable. It was also implied that limited access to healthcare is an enormous problem in the Fresno community.

Environmental Concerns

Participants identified several potential environmental exposures, which included contaminated water, inadequate water quality, airport noise, a nearby landfill, and nearby chemical companies. The officials consistently identified groundwater contamination and water wells and septic system problems as concerns.

The following statements were made by the key informants and reflected their concerns about the quality of their environment.

- 1. "Trash in the ditches may be possibly contaminating the water that doesn't flow well in the ditches. The ditches are close to the elementary school and the students pass them because there are no sidewalks. The landfill is also a problem because there once was a smell in the area. I don't know if the smell is no longer present or if I have simply become use to the smell."
- 2. "I don't drink the water because it taste funny, and I don't know why it taste funny."
- 3. "I am concerned about the airport and airport noise near my home."
- 4. "The nearby landfill smells like rotten milk some days when you pass it."

Handling of Environmental Concerns

The residential key informants felt that the environmental concerns of the community had not been addressed. However, the officials recalled efforts by County Commissioners, the County Commissioner's Court, and the Fort Bend Freshwater Supply District 1 to address water quality issues. The following statements from the key informants pertaining to environmental concerns reflected their discontent with the local government:

- 1. "Efforts by the Commissioner's Court and the Fort Bend Freshwater Supply District 1 have attempted to address the water concerns for the past 8 years, and efforts are finally moving forward."
- 2. "The previous County Commissioner worked with the constituents of the Fresno area to secure federal funds to develop the infrastructure for better water and to get a tax measure approved to pay for the project. However, the residents did not approve the tax measure in the election."
- 3. "Town hall meetings have been held previously to address the environmental health concerns of the community."
- 4. "The HOA [Homeowner's Association] has tried to address the smells in the air, but nothing has been accomplished."

Overall Health of the Community

The officials perceived the overall health of the Fresno community as worrisome or average, yet improving. The residents, however, perceived the overall health of the community as good. Residents and officials made the following statements about the health of the community.

- 1. "The overall health of the community is average because the water problem decreases the quality of life. The health problems and the water quality are interrelated."
- 2. "The health issues facing Fresno are related to a lack of adequate public water and sewer systems."
- 3. "The major health issues in the Fresno community relate to a lack of money, a lack of health check-ups, and to the sewer and septic tank issues."
- 4. "The overall health of the community has come a long way but we have a long way to go."

Access to Primary Healthcare

The residential participants stated that they obtain healthcare outside of the Fresno community, most often in the Houston metropolitan area. The officials agreed that the county health clinic and local emergency rooms were utilized for primary healthcare. The following responses demonstrate that the residents and officials believe their community lacks a private or indigent healthcare infrastructure.

- 1. "There are no plans to build a facility to service primary healthcare. Children under 18 years of age can apply for a program for healthcare and see any doctor. The concern is for residents over 18 years of age."
- 2. "The people in my neighborhood go back to Houston for primary healthcare."
- 3. "Emergency rooms in the free healthcare facilities, such as, the Harris County Hospital District system, the University of Texas Medical Branch in Galveston, and the Fort Bend Hospital, are used for primary healthcare. There is not a physician in the area."

Existence of Community-Based Organizations

Residents utilize the Homeowner's Associations (HOA) and civic organizations to voice their concerns. Elected officials listed several faith based organizations and a coalition created to address water quality concerns. Key informant participant responses demonstrate their thoughts about community-based organizations addressing their concerns.

- "I don't know of any community groups that are active, but if I had an environmental concern I would bring it up at the HOA meeting."
- 2. "Community development is being addressed by community faith based groups."
- 3. "The Fresno Coalition for Public Water is a group that is active in the community."

Sources of Community Information

According to the residents, community information is shared by utilizing HOA newsletters, newspapers, websites, flyers at local businesses, and bulk mailings. Officials perceived that community information is effectively communicated by direct mail, advertisements, faith based organizations, local agencies, websites, and consistently using HOA media. Residents and officials noted the following:

- 1. "Regulatory environmental information is shared through the county website. All forms for environmental health services have been recently translated for Spanish speaking residents."
- 2. "Information concerning health is not shared with the community."
- 3. "Information is shared with the community via HOA and civic associations' websites and newsletters."

Recruitment Tools

Residents suggested that HOA and civic club meetings were excellent places to recruit participants for future focus groups related to environmental concerns. Both residents and officials identified the local community center as a place to meet for focus group discussions. To

recruit participants for focus groups, they suggested contacting various agencies and senior citizen's groups. The officials also suggested mailing invitations. The following responses from residents and officials provided recruitment strategies to target specific groups:

- 1. "Send out invites via mail, and the residents will attend depending on their interest."
- 2. "A good way to recruit would be through the newspaper, senior citizen groups, agencies, and community centers geared to senior citizens."

Strengths of the Fresno Community

Officials listed the following as strengths of the Fresno community: the care, growth, and newness of the community; the opportunity for improvements; proximity to Houston; and the aggressive growth of the community. The residential participants stated that the following were strengths of the community: neighborhood upkeep; proximity to Houston; the educational system; parent teacher and Dad's organizations; community cohesiveness; and HOA planned activities were the strengths of the Fresno community.

- 1. "One of the strengths of the Fresno community is the community working together to enhance the neighborhood."
- 2. "The greatest strength of the Fresno community would be the care for the community by some of the constituents and the opportunity for improvements in terms of getting organized to improve the area."
- 3. "The greatest strength of the Fresno community is the growth of the community and how it has helped to force change to occur.

Barriers of the Fresno Community

The residents perceived that proximity, great distance to grocery stores and entertainment, and lack of access to healthcare and emergency care as barriers of the Fresno community. However, the officials' perceptions of the barriers of the Fresno community differed from those of the residents. The officials listed the following as barriers: lack of leadership, planned infrastructure, inadequate water supply, low

income, as well as, lack of comprehension of the growth of the community and the effects of this growth. Officials expressed their concerns in the following statements:

- "The greatest barriers are planning of the infrastructure and lack of leadership. There is unfair treatment in terms of infrastructure."
- 2. "One of the greatest barriers is the lack of income. The other barrier would be not recognizing and understanding the growth and the effects of the growth that is occurring in the community."
- 3. "There is a strange mix match of systems. A lack of information, the vagueness of the information and the complexity associated with accountability by the different entities and residents are barriers of the Fresno community."
- 4. "The access to emergency care is a barrier.

 The volunteer fire department and ambulance concern me."
- 5. "The major barriers are not enough residents complaining or voicing their concerns, new construction growth, sewer issues, not attending town hall meetings or HOA meetings, not utilizing the expensive taxes properly, and foreclosures on homes."

Discussion

The findings from the key informant interviews showed that the residents of Fresno face issues similar to other minority populations such as lack of formal education, lower incomes, inferior housing, and less access to healthcare compared to surrounding more affluent communities. One important finding of this study was that both residents and officials perceived that primary healthcare was not available in the Fresno community and was most likely accessed in emergency rooms of indigent healthcare facilities, in the county health clinic, and in the Houston metropolitan area. This unsettling finding is consistent with previous reports that demonstrate a lack of access to primary healthcare in minority and poor communities (Blanchard, Haywood, & Scott, 2003).

Disparities in healthcare have directly impacted emergency room care, which often functions as a provider for the uninsured, the poorly insured, and those who have difficulty navigating the primary system healthcare (Blanchard, Haywood, & Scott, 2003). As a result of this and other inequities, the United States Department of Health and Human Services in its Healthy People 2010 initiative adopted the goal of eliminating disparities in healthcare among racial and ethnic groups (U.S. Department of Health and Human Services, 2005). It has been suggested that the disparities in health are due in part to unequal health access, inequitable care, and one's social rank in society (Smedley, Stith, & Nelson, 2003; Zust & Moline, 2003). Health disparities have been shown to exist in populations of people who have unequal access to resources based on their social rank in society (Zust & Moline, 2003).

Recent studies have also begun to demonstrate that serious environmental inequities related to a number of contaminants are being observed in low-income and ethnic minority communities (Lee, 2002; Shepard, Northridge, Prakash, & Stover, 2002). Likewise, a study performed by The United Church of Christ Commission for Racial Justice found that approximately three of every five African-Americans and Hispanics live in a community with toxic waste sites (United Church of Christ Commission for Racial Justice, 1987). Similarly, low-income and minority populations in the United States have been shown to be the most experienced at living with environmental risk (Clark, Barton, and Brown, 2002; Northridge, Stover, Rosenthal, & Sherard, 2003). In low-income and communities, environmental concerns should be addressed by a complex web of public health, environmental, economic, and social entities (Lee, 2002). Creating and mobilizing the complex web of entities may prove challenging and time-consuming and the community may perceive the efforts as futile or nonexistent.

Ethnic and racial minorities have disproportionately high risks of exposure from chemical, physical, and biological hazards. Risk assessment models have been utilized to characterize risk of exposure. However, one of the major criticisms of risk assessment models is that the process ignores the types of hazards facing low-income and communities of color. Thus, knowledgeable individuals in the local area should be included in the design of these types of assessments in order to capture the unique exposure patterns and hazards of the community (Coburn, 2002). Such communitybased participatory research should be used as a tool for developing strategies to identify and environmental iniustice eliminate environmental risk assessments. Because scientists work closely with community partners during all phases of the research, from inception of the study to interpretation of the results, this ensures that the study is physically and conceptually rooted in the community (Israel, Schulz, Parker, & Becker, 2001; Shepard, Northridge, Prakash, & Stover, 2002; Swartz, Callahan, Butz, Rand, Kanchanaraksa, Diette, et al., 2002).

Qualitative methodology can be useful in community-based participatory research and community environmental health research because it gives to individuals and communitybased organizations an opportunity to voice the needs of the community. It also encourages the lay discovery of hazards and their effect on one's health (Brown, 2003). Key informant interviews are one type of qualitative methodology that uses many different, yet knowledgeable, members of a community to describe the experiences of the community and Marlow, 1999). Qualitative (Sherry techniques are therefore, useful in gaining a well-rounded view of how people and communities experience and handle problems (Brown, 2003).

The key informants in this study described inadequate water supply, airport noise, a nearby landfill, groundwater contamination, illegal dumping, and improperly installed or maintained water wells and septic tank systems as potential

environmental exposure concerns in the Fresno community. Residents unanimously agreed that their perceived environmental concerns were not addressed, nor was there a specific method or organization that could address environmental concerns. One suggested that the homeowner's association could possibly address environmental concerns. Fort Bend County officials recalled previous efforts made by local organizations and local government to address environmental concerns. However, the local efforts have proven to be futile thus far.

The official's perception of the overall health of the Fresno community was not quite as optimistic as that of residential respondents. The residential key informants perceived that individuals residing in the Fresno community were in good health. However, the county officials stated that several factors, such as lack of income, lack of health checkups, and inadequate public water and sewer systems might contribute to the worrisome or average health of the Fresno community.

Conclusions

The findings from the key informant interviews provided insight into the perceptions of environmental exposures and their potential effect on the health of the Fresno community. of the potential environmental Many contaminants identified by key informants in this study have been previously detected in other low-income minority communities. and Additional qualitative research studies will be developed using this preliminary data to further examine the perceptions of environmental exposures and associated health effects in the Fresno community. There is also a need to develop education awareness strategies and tools for addressing the community's concerns and to develop and conduct clinical/quantitative studies that measure contaminant levels and accurately assess health status and risk of exposure among members of this community.

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Appendix A Categories of Questions

	Categories of Questions	
Environmental Concerns	Health of the Community	Community
Perceived Environmental Concerns	Perceived Overall Health of the Community	Existence of Community Based Organizations
 Are there any special environmental concerns that you noted? Who voice the concern? Handling of Environmental Concerns Has there been anything done in the past to address the environmental concerns of the community? 	 What would you identify as the major health issues in the Fresno and surrounding communities? Are there differences among different populations or segments of the population? How would you rate the overall health of the community? Access to Primary Healthcare Where do people go for primary health care? 	 Are there any community groups that are active in health or environmental issues for this community? Sources of Community Information How is information concerning health shared with the community at large? Are there others that you think we should talk to? Please explain why? Recruiting Tools Where would be a good place to recruit Fresno residents for participation in focus group sessions on environmental and health concerns? Strengths/Barriers of the Fresno Community What do you think is the greatest strength of this community? The greatest barrier?