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Educating Latina Mothers About U.S. Environmental Health Hazards

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1. Introduction

Environmental justice emphasizes health equality among all groups and cultures, so that no one group suffers disproportionately from environmental conditions over another group. The Environmental Protection Agency (EPA) defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA, 2011).

Environmental justice entitles everyone to healthy housing and protection from indoor environmental hazards. Yet there remain low-income families in urban areas of the United States whose living conditions adversely affect their health. Specific health issues include inadequate housing, indoor environmental health hazards, lack of health insurance, and barriers to health care (Sharfstein, Sandel, Kahn, & Bauchner, 2001).

2. Health disparities for minorities in the United States

Minority groups are disproportionately affected by the large number of health consequences from indoor environmental hazards. Latinos, compared to Caucasians, experience increased exposure to asthma triggers, lead poisoning, second-hand smoke, pest problems, dust mites, dangerous cleaning chemicals and pesticides, as a result of environmental inequity (Miller, Pollack, & Williams, 2011).

Progress has been made to curb some exposures, but disturbing disparities remain, especially among children. Blood lead levels decreased from 8.6% during 1988-1991 in US children ages one to five to 1.4% from 1999-2004 (Jones, Homa, Meyer et al., 2009). Despite this decrease, roughly 250,000 American children between one and five have blood lead levels of 10 μg/dL or greater, a level known to adversely affect a child's well-being (ATSDR, 2007; CDC, 2011a). Moreover, the Natural Resources Defense Council (2004) found that Latino children are twice as likely as Caucasian children to have blood lead levels that exceed 10 μg/dL. Elevated blood lead levels in children have been linked to decreased IQ levels as well as behavioral problems. A major source of lead exposure in homes is lead paint dust found in homes built before 1978 which can be ingested by babies and young children (Gilbert & Weiss, 2006; Jones, Homa, Meyer et al., 2009; Pearce, 2007).

Asthma is a common disease afflicting more than 23 million Americans in the United States (Bloom, Cohen, & Freeman, 2009; Pleis, Lucas, & Ward, 2009). Nearly 9.5 million (13%) of these individuals are children under the age of eighteen (Bloom, Cohen, & Freeman, 2009). Asthma attacks may occur in children when there is exposure to indoor asthma triggers (i.e., mold, dust mites, second-hand smoke, pest problems, and dangerous cleaning chemicals), and several studies emphasize the need to decrease or eliminate these triggers (Akinabi, Moorman, Garbe, and Sondik, 2009; Chipps, 2004; Lwebuga-Mukasa, Wojcik, Dunn-Georgiou, & Johnson, 2002).

Nationally, 14% of children from birth to eighteen years had ever been diagnosed with asthma in 2009 and Latino children were 60% more likely to have asthma than their Caucasian counterparts (National Center for Health Statistics, 2010; U.S. Department of Health and Human Services, 2009). While Latinos overall had the lowest prevalence of asthma nationally (6%), Puerto Ricans had the highest prevalence (14%) followed by African Americans (10%) and Caucasians (7%) (CDC, 2010b).

From 2007-2008, approximately 88 million Americans were exposed to second-hand smoke. This figure includes nearly 22 million (53.6%) children between the ages of 3 and 11 years (CDC, 2010a). The potential negative health effects of second-hand smoke include SIDS, respiratory and ear infections, and severe asthma (Melen, Wickman, Nordvall, van Hage-Hamsten, & Lindfors, 2001; U.S Department of Health and Human Services, 2006). Exposure to second-hand smoke in the unborn child can result in growth retardation, preterm labor, and low birth weight (Khader, Al-Akour, Alzubi, & Lataifeh, 2011; Law, Stroud, LaGasse et al., 2003).

Pests such as mice and cockroaches have taken a toll on the health of low-income Latino children, through the development of asthma or allergies from pest allergen sensitization (Stelmach, 2002). To eliminate pests and the negative health consequences associated with them, those who are suffering from infestation in their homes generally use pesticides and dangerous cleaning chemicals. However, these chemicals have been associated with miscarriages, birth defects, brain damage, and cancer (National Center for Healthy Housing, 2008; March of Dimes, 2011). A disease can lay dormant for several years only to manifest years after the initial exposure. Even exposure to low levels of dust mite allergen is related to asthma morbidity, suggesting that there is no safe level of exposure to dust mites (Jalaludin, Xuan, Mahmic et al, 1998; Kuehr, Frischer, Meinert et al., 1994). Additionally, dust mite exposure is associated with a decrease in lung function as well as asthma severity (Carter, Peterson, Ownby et al., 2003; Suppli & Backer, 1999).

3. Pennsylvania Latinos

The Latino population in Pennsylvania has been steadily increasing. A significant influx of Latinos moved to Pennsylvania between 2000 and 2009, bringing with it a 64% increase (394,088 to 646,524) in Latinos over the course of the decade (Pennsylvania Department of Health, 2011a). Meanwhile, the African American population grew by 11.4% (1,224,612 to 1,364,549) and the Caucasian population grew just 2.8% (10,484,203 to 10,773,983) in the same time period. This trend is striking considering these rates do not include the number of undocumented pregnant or newly parenting Latina women who migrate to the United States every year.

Latino children are particularly at risk of living in poverty. In 2008, almost one third (31%) of Latino children eighteen years or younger nationwide lived below the poverty level and half of Latino children in Philadelphia lived at the poverty level (Pew Hispanic Center, 2008). Babies and children of low-income minority parents are at a higher risk for indoor environmental health issues. In 2008, 5% of the Pennsylvania population was Latino, and Latina women between the ages of 15 and 44 accounted for 8% (12,000) of all live births in Pennsylvania (Pew Hispanic Center, 2008).

Even with the national decrease of the fertility rate among Latinas from 3.4 in 1990 to 2.6 children per woman in 2003 (Navarro, 2004), the number of pregnant Latina women ages 15-44 years in Pennsylvania reached 10,513 (6% of the total pregnant population) in 2002 (Pennsylvania Department of Health, 2002). From 2005-2008 Latinos had an 14% increase in live births in Pennsylvania (12,145 to 13,883) compared with Caucasians who experienced a 1% decrease in live births (108,795 to 107,623) (Pennsylvania Department of Health, 2010).

In Pennsylvania, asthma prevalence for children under 18 was 10% (285,000) and children ages 0-4 had the highest asthma hospitalization admission rate (48.5 per 10,000) among age groups. In 2009, Philadelphia had an asthma hospitalization rate nearly 3 times that of the whole state at 54.1 admissions for every 10,000 residents (Pennsylvania Department of Health, 2011b). Latinos also had the highest number of age-adjusted hospital admissions at 35.3 per 10,000 verses Caucasians at a rate of 11.8 per 10,000 residents.

In 2007, 2,246 Philadelphia children had lead poisoning - half the number of children that were affected in 2001 (Public Citizens for Children and Youth, 2008). This figure has decreased significantly in large part because organizations have been making homes lead safe, but there are still many homes with lead paint that have yet to be remedied since eighty percent of Pennsylvania homes were built before 1980 when lead paint was phased out (U. S. Census Bureau, 2000).

4. Needs assessments of environmental health disparities in the Latino community

Pennsylvania can draw on experiences from other programs. The Seattle Healthy Homes Program found that using community health workers to educate minority groups most at risk for environmental health hazards was an effective intervention for reducing the exposure to environmental health hazards in the home (Krieger, Takaro, Song, Beaudet, & Edwards, 2009). The Centers for Disease Control's Childhood Lead Poisoning Prevention Branch developed a web-based Healthy Housing and Lead Poisoning Surveillance System which tracks lead and non-lead housing risk factors and identifies groups that require assistance (CDC, 2009).

The Finance Project, a non-profit firm in Washington D.C., helps to improve linguistic and cultural barriers in health care (Lind, 2004). It offers strategies such as tailoring services to the community, providing oral and written translation when needed, and holding health education campaigns in many languages in order to reach a greater number of people.

5. Maternity Care Coalition: "Healthy at Home" program in Philadelphia

Maternity Care Coalition (MCC) is a private non-profit community-based organization in Philadelphia that works with individuals, families, health. Care providers, and the community to improve maternal and child health MCC's signature program, the MOMobile®, utilizes community health Advocates to identify and support pregnant and newly parenting women and their families in Philadelphia. MCC's Advocates live within the community where they work to implement the MOMobile® program. The Advocates' effectiveness lies in their ability to relate to and understand the culture and lifestyle of their clients.

"Healthy at Home" was a MOMobile® educational intervention developed to address indoor environmental health hazards including lead poisoning, pests, second-hand smoke, asthma, and noxious cleaning products. This program was aimed at pregnant Latina women and new parents living within the city of Philadelphia, to address the high rates of asthma and lead poisoning.

A "Healthy at Home" assessment was conducted to evaluate the knowledge gained by Latina women who participated in the program and to evaluate its effect on their behavior regarding the proper management of environmental hazards in their homes.

The majority of women received high scores in all environmental content (knowledge gained) areas. There were significant behavioral changes concerning environmental pests, the use of cold water to reduce lead exposure, and effective cleaning techniques. There were also significant knowledge increases related to lead poisoning and asthma (Wilson, Crivelli-Kovach, & Worley, 2010).

5.1 Case study: Environmental justice interviews with Latina mothers

5.1.1 Participants

Once the "Healthy at Homes" program was completed, Latino women were invited to participate in a follow-up study exploring their views of environmental justice and how it related to their homes and community.

In October 2004, MOMobile® Advocates from MCC recruited ten pregnant and/or newly parenting Latina women to participate in an interview discussing environmental justice. Inclusion criteria were:

- pregnant or newly parenting Latina women who participated in the first year of the "Healthy at Home" project implemented at the Latina MOMobile® site in Philadelphia, PA, and
- current clients of MCC.

Women were included whether they spoke English or Spanish. Questionnaires were developed in both languages and the interviews conducted in the language of choice of the interviewee.

5.1.2 Methodology

Design

Data were collected for this study using face-to-face interviews in the participants' homes to investigate the impact of the "Healthy at Home" intervention on the beliefs of Latina

women about environmental justice issues and to explore the degree to which Latina women become socially active as a result of increased awareness of environmental hazards.

Instrument

The questionnaire was developed based on the literature and was provided to the women in both English and Spanish depending on the woman's language of choice. A panel of experts including Advocates from the Latina MOMobile® (Maria, Jenny, and Carmen) reviewed the questionnaire for content validity.

Data Collection

MCC Advocates recruited interview participants via telephone, inviting Latina women who had completed the "Healthy at Home" program to participate in the interviews. Advocates scheduled home visits with each participant so that the researcher could interview them in their home. The researcher was accompanied by one of the Advocates. The interviews took approximately twenty minutes to half an hour to complete. The interview also incorporated the collection of basic descriptive data including age, number of children, type of housing, and income.

Data Analysis

SPSS was used to analyze demographic data in the environmental justice interviews. N-VIVO was used to identify and analyze content themes in the qualitative data obtained from the interviews.

5.1.3 Results

Demographics

All of the Latina women who participated in the environmental justice interview were Puerto Rican between the ages of twenty and twenty-nine with a mean age of 24. Each woman had between 2 and 7 children but the largest number of women (4, 40%) had two children.

The number of individuals who lived in a house verses an apartment was nearly half (6, 60% vs. 4, 40% respectively) and 8 (80%) of the women rented their homes. Four (40%) lived where they currently did due to family and 2 (20%) reported that cost of living was a factor.

Eight women (80%) were not currently employed and all of the women (100%) had an educational level of high school equivalency or below. The average number of years of education among the women was 10.2 years.

Eight of the women (80%) were the sole primary caregivers for their children. Seven (70%) did not have a live-in partner or a partner who worked or contributed money to benefit their child(ren).

Several themes emerged from the environmental justice interviews. Three of these themes – (a) health behavior change leading to health promotion, (b) government's role in society, and (c) trust and distrust -- were linked qualitatively with the results of the "Healthy at Home" survey pre- and post- tests (Wilson, Crivelli-Kovach, & Worley, 2010).

Theme 1: Health behavior change leading to health promotion

Out of the ten women, 8 (80%) made some type of change within their home after the "Healthy at Home" program. Four women (40%) started dusting and washing their homes with baking soda and vinegar. Two (20%) individuals, including one who dusted, also mentioned that they had pest problems and attempted to fix that as well; one through pest control and the other on their own.

Every health behavior change that the women made in the home promoted better health for the parents and the children. Two (20%) of the women said they had specifically changed their cleaning habits to benefit their children. Three out of the 5 (60%) families who had one or more family members with asthma began smoking outside, rather than in the home. Half of the women who were interviewed reported that the education made it easier to make changes in the home, whereas only 2 (20%) found that "trying to do everything" and having to watch the kids made it more difficult.

Theme 2: Government's role in society

Though none of the women became more involved in their community by rallying for environmental equity, 5 (50%) voted in the most recent presidential election and 5 (50%) shared environmental health education with others.

The Latina women had mixed feelings about the government's responsibility for environmental issues in the home. While half of the women indicated that it was their sole responsibility to protect their children from environmental hazards in the home, three (30%) expressed that it was the responsibility of both parents and all levels of government to protect their children.

Half of the women said they believed the government was able to make important laws and policies based on environmental concerns.

Theme 3: Trust and distrust

Trust and distrust were prominent themes throughout the interviews, on many levels. Overall, issues of trust were revealed through questions that explored the government-U.S. citizen relationship, the Advocate-client relationship in the "Healthy at Home" program, and the interviewer-interviewee relationship. As previously mentioned, half (50%) of the clients trusted the government to take care of environmental laws and policies.

Given that the Advocates came from the same community as the Latina women and were bilingual, the women who participated in the interviews embraced the Advocates, trusted them to help the mothers with health issues and deliver the environmental health information (i.e., pamphlets discussing lead poisoning and asthma) that the mother's needed.

However, a few of the women still seemed cautious of the interviewer and skeptical about the interview. Additionally, the women were given a choice between conducting the interviews in English or Spanish, and 3 (30%) chose English even though their primary language was Spanish. The same women spoke English as well, and there was only one (10%) individual who asked for the questions to be verbally stated in both English and Spanish so they could fully comprehend it.

Finally, the community-individual trust relationship was revealed in one question, which asked the women if they had shared information about the consequences of asthma and lead poisoning with others they knew. Over half (60%) of the women provided family or friends with environmental hazard information, while the remaining women (4 or 40%) did not inform anyone at all.

5.1.4 Discussion

Latinos generally have more children and are younger than the general population when they first become pregnant (McDonald, Suellentrop, Paulozzi, & Morrow, 2008; Taylor, Ko, & Pan, 1999; Wingo, Smith, Tevendale, & Ferré, 2011). Some researchers attribute early age of pregnancy to the cultural background and norms of the Latino community.

Latinos overall complete fewer years of formal education than the general population (McDonald, Suellentrop, Paulozzi & Morrow, 2008). The level of educational attainment found in the interviews is similar to a study performed by Giachello (1994). According to Giachello, while 85 percent of Caucasian mothers and 70 percent of African American mothers had 12+ years of education, only 46 percent of Latina mothers achieved the same level of education.

Theme 1: Health behavior change leading to health promotion

The health behavior changes that the women made in the home promoted better health for the parents and the children. One woman stated, "I do it for my children."

The women's changes were comparable to those made by the parents of inner-city African American and Latino youth by the NIAID and NIEHS, whose actions produced a decrease in passive smoking, pest problems, dust mites, animal dander, and mold within the home (Morgan, Crain, Gruchalla et al., 2004). This decrease eventually led to a greater than 30% decrease in hospitalizations due to asthma.

The percentage of families who had one or more family members with asthma smoke outside is somewhat similar to that of another study (Krieger, Takaro, Allen et al., 2002) where 20% of those who received smoking education and patches quit smoking.

Theme 2: Government's role in society

Voting in the presidential election marked the first step to environmental justice by getting Latinos involved in the political system. The women may have felt that voting was their social action, since it focused on a national level as opposed to a community event.

One mother reported that she was not politically involved now but "I want to because it will help my children." Another wanted to be more involved in her community and politics. However, due to unarticulated reasons, she had some difficulty accomplishing it. She declared, "I wanna rally for a lot of things but it's not like it's gonna happen." When asked why, she responded with a shrug.

One individual stated that it was the responsibility of "me and my husband but the government needs to keep the houses fixed up and safe and secure. There's already a crack in our house and it's not even been a year."

One woman voiced her opinion regarding the government role in implementing important laws and policies saying that "they gotta do what they gotta do." Even with laws and policies put into effect by the government, inequities still occur among minority groups, as seen in the case of the Warren County incident of 1982 (Ringquist, 2000), where PCB-contaminated soil was dumped in a landfill in a primarily African American neighborhood.

Importantly, women who were open about the way they felt toward the government and politics before the tape recorder started to record were less open during the interview itself.

The fact that many of the parents responded that they should be responsible for their homes yet trusted the government to make appropriate laws and policies to change indoor environmental health issues gives the impression that what goes on inside the home is the family's business and the government's focus is on the entire Latino community's health rather than that of individual families.

Theme 3: Trust and distrust

The finding that half of the clients trusted the government to take care of environmental laws and policies is slightly less than the national average where over sixty percent of Latinos trust that every level of government can solve various issues (National Public Radio, 2000). Another study, The Pew National Hispanic Survey (Pew Hispanic Center, 2002), found that over 15% of Latinos trusted the government completely verses 13% of Caucasians and 9% of African Americans.

The Advocates provided a safe atmosphere for pregnant and newly parenting women who were trying to support themselves. One of the interviewees became so attached and grateful to one of the Advocates that she started to have her kids call the Advocate "grandma" in Spanish.

The women's skepticism regarding the interviewer and the interview itself could be related to their fears that the interview might not be anonymous or the government might hear what they were saying. However, all of the women were reassured before the interviews that there would be no identifying information linking them to their responses.

One of the four women who did not inform anyone about environmental health hazards reported, "I don't have friends to explain it to." Still, some of the women who took part in the environmental justice interviews did not portray that sense of community where they lived; in reality, certain women faced social isolation. They moved from one neighborhood to the next every few years and did not have the time or the energy to make bonds with people in their communities. Many had most if not all of their relatives still in Puerto Rico. Some of the women were just struggling to survive and take care of their children. They may have been more focused on the basic needs of their children rather than making the extra effort to correct indoor environmental health dangers and telling other people about the environmental problems.

Putnam (2000) emphasized the importance of social capital among communities. He found that there has been a gradual increase over the years of people looking out for themselves rather than the community as a whole. Contrary to this belief, the Social Capital Community Benchmark Survey of 2000 (Roper Center for Public Opinion Research, 2000) found that social capital was high among the Latino community. In fact, 83% of Latino population in America said they had old or new friends who gave them a sense of community.

6. Program and policy implications

The knowledge and insight of the environmental justice interview led to several recommendations for future program development. It became apparent that a number of issues needed to be addressed in the "Healthy at Home" program. Either there should be an increase in overall indoor environmental household changes through stronger education or the concentration should be on just one or two indoor environmental health issues, in order to achieve a greater rate of behavior change. The language used in the environmental justice questionnaire could be designed more in layman's terms.

Policy recommendations highlight the need for leadership and participation. With such a large number of women who rent their homes, landlords need to become involved to improve indoor environmental health. Leaders who facilitate addressing public health concerns are best supplied by their respective local communities. These leaders need to work with public health officials and the government to improve the community's overall health. Finally, steps need to be taken to increase the Latina women's trust.

6.1 Housing policies

Eight (80%) of the women rented homes. The government and health professionals need to work with landlords to try to decrease housing concerns. Even with laws in place, many are not enforced to protect the rights of minorities. But some strides are being made.

For example, in order to protect people from housing discrimination the government passed the Fair Housing Act in 1986 which was later amended in 1974 and again in 1988. Race or color, national origin and familial status (i.e., someone with children or pregnant) are all included under the Act (U.S. Department of Housing and Urban Development, 2004). By law, no one can refuse to rent or sell housing or have different rules or conditions for the rental or sale of housing based on an individual's background, color of their skin, national origin or whether or not they have children. These stipulations include Latinos and other minority groups who continue to be discriminated against and have had to deal with residential segregation where they have less access to jobs and transportation as well as a higher concentration of lead poisoning and asthma (National Low Income Housing Coalition, 2008).

In spite of all the available literature about the consequences of lead poisoning, lead screening has not been universally mandatory. Nevertheless, a couple of states have created statewide policy requiring children to be screened for it. Massachusetts passed 105 CMR 460,050 in 1990. This law enforces yearly screening in all children throughout Massachusetts, between the ages of nine months and four years (Sargent, Brown, Freeman et al., 1995). Sargent et al. evaluated this lead screening and found that a child is seven to ten times more likely to have lead poisoning based on whether they were living in poverty, whether or not the child lived in a home from before the 1950's, and whether or not the parents owned the home. Connecticut started universal blood lead level screenings in 2009 due to Public Act 07-2 (Connecticut Department of Public Health, 2009). Universal screening is important because if there is no screening, there would be no way of knowing if those most at risk need treatment for it. By screening everyone, and especially, those most at risk, one can insure that treatment brings the lead poisoning levels down and hopefully decreases incidence rates.

In 2004 the Washington Post listed Philadelphia as one of several cities around the country that either discarded the city's water test if it showed high lead levels or refused to test homes that are at high risk for lead problems (Leonnig, 2004). Leonnig reported that Senate members are trying to increase laws to reduce lead in water and make the general public aware of any exposure to lead poisoning. Various government officials are investigating whether the EPA is doing its job at protecting high-risk populations.

California put the Pesticide Prevention Act and the Healthy Schools Act into effect in 2000 so that schools must tell parents when they use pesticides, keep records of the pesticides they use, and develop a safer pest management program (California Department of Pesticide Regulation, 2001).

Thirty states are currently working to pass the Safer Alternatives Bill which calls for the use of safer alternatives to dangerous chemicals in everyday cleaning products (The Alliance for a Healthy Tomorrow, 2011). They are also working to change the Toxics Substances Control Act of 1976 which continues to allow dangerous and untested chemicals to be used in everyday products.

Governor McGreevey from New Jersey authorized an environmental justice executive order to improve quality of life and reduce the disproportionate amount of exposure to environmental health hazards that affect low-income and minority groups (State of New Jersey, 2004). The Department of Environmental Protection plays a significant role in this law because it must correct health information to meet the needs of minorities who speak English as a second language, and examine currently available health research to improve industrial and commercial sites located in low-income and minority neighborhoods to reduce undue exposure to environmental health hazards. The environmental justice executive order includes the need for increased community involvement in environmental health policy through the help of government agencies. By addressing all of these issues successfully, environmental justice may become part of a political discourse and action plan in other states.

In both minority and low-income families, children bear a great extent of the burden of negative health outcomes from indoor environmental hazards (Powell & Stewart, 2001). As children are not yet capable of protecting themselves, they become fully dependent upon their parents to guard them from exposure to indoor health hazards. Parents may accomplish this through personal indoor environmental health change, their appeal for environmental health programs and through new environmental laws and policies.

6.2 Distrust of government

Half (50%) the women interviewed trusted the government. The level of trust in the government will most likely increase when the community sees that the government is serious in following through on environmental laws and policies that will decrease the environmental health problems in Latino homes. Several studies including Krieger et al. (2009) and Perez et al. (2006) have found community leaders to be effective in changing health behavior because individuals related to and trusted them. Additionally, by getting policy leaders involved with a particular community, as seen in the case of the Kaiser Permanente Community Health Initiative (Kramer, Schwartz, & Cheadle et al., 2010), it may help to facilitate the policy process. It can make the transition easier for individuals within

the community to speak out and become more involved in the legalities and policies of environmental health.

It is important to establish community leaders in the Philadelphia Latino community. Intuitively it is best for leaders to come from within the community than to be brought from outside. LeBlanc et al (1989) performed a study that found that community leaders were effective in changing the attitudes the community had towards cancer because the community trusted them.

Half the women trusted the government but there should be an even higher level of trust between government and the Latino community. The Latino mother needs to have someone to depend on such as the government and community leaders. Once community leaders have been established, they need to represent the rest of their community and have constant interaction with public officials and health professionals who can improve the community's health situation.

Finally, many of the women were reluctant to talk in general, and more specifically, about certain issues like the government. As mentioned previously, this may be connected with the women's fear of someone hearing what they have to say and the fact that they wanted their statements to be anonymous. For example, if the women said something bad against the government, they might fear that their welfare or insurance benefits would be negatively affected. It is important to find out how to elicit more information from women, whether it is to handwrite interviews, have several meetings with the women beforehand, or have the Advocates conduct interviews.

7. Future directions

Although each of the covered topics are equally important, the focus of the "Healthy at Home" program may need to change in order to cover just one or two topics rather than emphasize several at one time. It is important to note that fewer than 50% of individuals diagnosed with asthma have been taught how to avoid asthma triggers and of those that did receive education, 52% percent followed most of the recommendations (CDC, 2011b). MCC may also want to perform a needs assessment within the Latino community to see which topics are most important to the members of the community. For example, individuals might want to know more about lead poisoning than the other given topics. Once the majority of the community has reached a decision about what it feels it needs, program planning and implementation can go from there.

Half (5, 50%) of the women shared information about environmental hazards with family or friends. With respect to social action, many women felt that voting was their social action, demonstrating a perspective more national than local. Future studies will prove beneficial in finding ways to improve self empowerment for the Latino individual, social interaction within the Latino community itself as well as increase trust toward the government in order to promote environmental health change.

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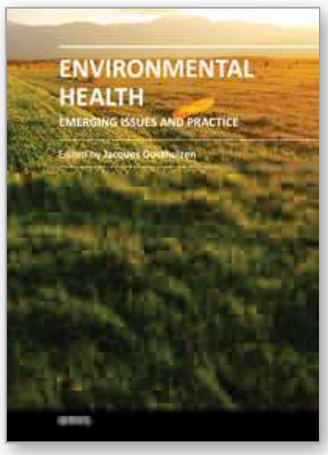
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Environmental health practitioners worldwide are frequently presented with issues that require further investigating and acting upon so that exposed populations can be protected from ill-health consequences. These environmental factors can be broadly classified according to their relation to air, water or food contamination. However, there are also work-related, occupational health exposures that need to be considered as a subset of this dynamic academic field. This book presents a review of the current practice and emerging research in the three broadly defined domains, but also provides reference for new emerging technologies, health effects associated with particular exposures and environmental justice issues. The contributing authors themselves display a range of backgrounds and they present a developing as well as a developed world perspective. This book will assist environmental health professionals to develop best practice protocols for monitoring a range of environmental exposure scenarios.

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