



"Mi niño con asma": Hispanic/Latina Mothers, Environmental Justice, And Photovoice At The Front Lines Of The Asthma Epidemic

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## Abstract

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**Problem:** The purpose of this paper is to describe the discourses of environmental justice of a group Hispanic/Latina caregivers of children with asthma.

**Method:** A photovoice design was used with Hispanic/Latina mothers (n=11) in Tacoma, Washington, to take, discuss, select and display *phototexts* to policymakers that communicated their experiences and opinions in managing asthma for their child. Using critical narrative analysis, phototexts were analyzed for the use of agency and structure in confronting environmental threats to asthma.

**Results:** Participants produced 33 phototexts taking on the roles of teacher, parent, advocate, investigator, and storyteller. Narratives identified environmental threats (breathable, meteorological, medical, social, emotional, and ingestible) and promoted protective actions and social advocacy against such threats.

**Conclusion:** Mothers' actions as teachers and advocates in the phototexts provided opportunities for promoting empowerment and solidarity with others in the face of multiple environmental oppressions. Critical narrative analysis of photo-texts provided an opportunity to identify important opportunities for furthering environmental justice in new immigrant groups.

## Keywords

Hispanic/Latino; asthma; environmental justice; photovoice; critical narrative analysis

## Cover Page Footnote

The authors wish to acknowledge the courage and insight provided by the eleven Latina Women who contributed their time and expertise to this photovoice project. The authors also acknowledge the MultiCare Institute for Research and Innovation for providing significant funding, the Tacoma Community College Family Literacy program for providing consultation, childcare, and meeting support, and the Tacoma School district for meeting space. The Washington Asthma Initiative and the Puget Sound Asthma Coalition's "Patient Care Outcomes Research" grant provided dissemination support.



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### **ABSTRACT**

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## INTRODUCTION

Asthma impacts over 7 million children in the United States (U.S.), and disproportionately affects racial and ethnic minorities and families living in poverty (Akinbami et al., 2012). Direct and indirect costs associated with asthma are substantial, with the most recent estimate totaling 62.8 billion dollars annually (Jang, Chan, Huang, & Sullivan, 2013). Improved scientific and clinical understandings of the disease process have yet to yield much improvement in decreasing asthma disparities (Dougherty, Chen, Gray, & Simon, 2014).

Asthma differentially impacts Hispanic populations: between 2001 and 2010, Hispanic children (ARR: 1.40; CI: 1.15–1.71) were significantly more likely than Non-Hispanic White children to have visited the emergency room or urgent care center in the last 12 months (Oraka, Iqbal, Flanders, Brinker, & Garbe, 2013). Compared to Non-Hispanic Whites, Hispanics are more likely to live and work in unhealthy environments. They are also less likely to have access to appropriate health care than non-Hispanic whites (American Lung Association, 2011).

In Mexican or Hispanic/Latina populations (henceforth referred to as Hispanic/Latina as expressed in the identity preferences of the participants in this study), the length of time particular groups have been living in the U.S. is positively related to asthma prevalence. Authors of a recently published systematic review suggest that environmental exposures may be the reason that asthma prevalence is typically higher in second generation than first generation immigrants (Cabieses, Uphoff, Pinart, Anto, & Wright, 2014). There is also speculation that the lack of exposure to diseases and parasitic infections of childhood typically experienced in developing countries, the so-called "hygiene hypothesis," may also be an important environmental contribution to the rise of asthma prevalence in second-generation immigrants (Daley, 2014). It is difficult, however, for researchers to determine which particular exposures experienced in the host country might be providing this protection (Weber et al., 2015; Strachan, et al., 2015). Immigrants to the U.S. should have the right to maintain such protections and to live in safe environments. Little is known about how Hispanic/Latina caregivers of children with asthma negotiate the complexities of asthma management in the midst of such environmental risks. The purpose of this paper is to describe the discourses of environmental justice of a group of Hispanic/Latina caregivers of children with asthma.

### Background and Literature Review

New immigrants typically experience some supports for learning English within a variety of school and community settings. However the typical English for Speakers of Other Language (ESOL) instruction programs may not truly help these parents achieve justice within their myriad oppressions; even given adequate language, they may still lack empowerment in negotiating healthcare and advocating for safer living environments for their children (Abrego, 2011). Yet ESOL programs may provide a platform for such empowerment by partnering with participatory research projects such as the study described in this article.

This study was conducted within an ESOL and Family Literacy program for new immigrants in Tacoma, Washington State. Tacoma has a population of 198,000 with 11.3% Hispanic/Latina (U.S. Census, 2010). This particular ESOL program is a product of a partnership effort between the local school district, Head start programs, and Tacoma Community College. The goals of this partnership are to transition new immigrants to college-based education and careers. This program currently includes immigrants from Southeast Asia, Soviet nations, Central America, and Mexico.

Immigration status, language barriers, and limited health literacy compound the ability of immigrant caregivers to voice their concerns about preventing and managing asthma (Claudio & Stingone, 2009; Riera et al., 2015). More than 270,000 undocumented persons live and work in Washington State, and a significant proportion of these immigrants are from Mexico (Baker & Rytina, 2013). In the last decade, undocumented families have experienced an increase in deportation (Dreby, 2014). This makes them prime targets for environmental injustices such as workplace exposures, wage theft, and sub-standard housing compared to immigrants who have been in the U.S. for longer (Zoeckler, Lax, Gonos, Mangino, Hart, & Goodness, 2014). While citizen children in these families have access to some benefits, such as food stamps and medical coupons, their parents have no access to other benefits available to citizens, such as subsidized childcare, housing, or financial aid for education. In addition to the risk of exploitation, undocumented immigrants also experience stress related to restricted mobility, isolation, and stigmatization (Martinez et al., 2013; Sullivan & Rehm, 2005).

Environmental justice is concerned with the basic human right to live, work, play, go to school, and worship in a clean and healthy environment (Bullard, 1993). The Environmental Protection Agency's stance on environmental justice calls for the "fair treatment and meaningful involvement" of diverse communities in environmental improvement (Environmental Protection Agency, 2014). While there is no cure for asthma, the disease can be controlled through four domains of asthma management: provider visits for asthma assessment and management, education, using preventative and quick relief medication, and most important for this study, the assessment and modification of the home environment (Reddel et al., 2009). Such environmental factors include both indoor and outdoor particulates, volatile organic chemicals, tobacco smoke, endotoxins from dust mites, cockroaches and rodents, excessive humidity, and mold (Krieger & Higgins, 2002). Controlling environmental factors often assumes that patients and families have the ability to make structural changes to their homes and outdoor environments (Kueny, Berg, Chowdhury, & Anderson, 2013; Postma, Smalley, Ybarra, & Kieckhefer, 2011).

Researchers working with Hispanic/Latina families show that families are uncertain what the diagnosis of asthma might mean (Mosnaim et al., 2006), and that families lack knowledge about asthma self-management (Berg, Anderson, Tichacek, Tomizh, & Rachelefsky, 2007; Mosnaim et al., 2006). However, in an analysis of medication practices of a pooled sample (n=1757) from the 2003 and 2008 National Health Interview Survey, McDaniel and Waldfogel (2012) found that the 212 Mexican-American children in the sample did not differ significantly from the White children across the four domains of asthma management. Others have found that Hispanic/Latina populations care very much about their home environment and the use of medications (Postma, Evans-Agnew, Capouya, 2014), sometimes even more so than African-American or Non-Hispanic White families (Everhart et al., 2011), yet considerable economic and educational disadvantages remain for them to make actual changes to their living environments (Rosser, Forno, Cooper, & Celedon, 2014).

Some researchers suggest that culturally tailored strategies to mitigate environmental factors in asthma management among Hispanic/Latinas may be beneficial (Fisher, Burnet, Huang, Chin, & Cagney, 2007; Koinis-Mitchell et al., 2010) yet little is known about the practices Hispanic/Latina families make in modifying their environments, especially in rental housing or in disadvantaged neighborhoods. Innovative approaches are needed to investigate Hispanic/Latina perspectives on their practices of asthma management in their home

environments (Tapp, White, Steuerwald, & Dulin, 2013). The purpose of this paper is to describe the discourses of environmental justice of a group of Hispanic/Latina caregivers of children with asthma. In other words, the way Latina/Hispanic caregivers of children with asthma talk about the practices they use to manage environmental threats to their children.

#### Theoretical Framework

Photovoice is a participatory research method following Friere's conceptions of emancipatory knowledge that provides opportunities to investigate and observe a community's strengths and needs, develop individual empowerment, and advocate for change (Catalani & Minkler, 2010; Foster-Fishman, Nowell, Deacon, Nievar, & McCann, 2005; Wang & Burris, 1997). In photovoice, participants work in small groups to critically assess their environments or life contexts through the process of taking, discussing, and constructing text to accompany their photographs (referred to hereafter as phototexts) in displays to policymakers (Wang & Burris, 1997). Paulo Freire (1970) conceptualized a *co-intentional* process between researchers and participants to create knowledge and take action to address the realities of environmental inequities experienced by the oppressed. In the Freirian sense, teachers and students co-intentionally become, "...Subjects, not only in the task of unveiling that reality, and thereby coming to know it critically, but in the task of re-creating that knowledge" (Freire, 1970, p. 56). The photovoice process promotes participant empowerment and an opportunity to transform policy through the public sharing of their photographs to policymakers or other stakeholders. Such methods complement a deep tradition of emancipatory instruction found in educational environments for the promotion of student voice (Fielding, 2004; Kirby, 2001).

Family literacy and ESOL programs in communities of poverty address student voice and empowerment by grounding their pedagogy in service of civics education and social change. Educational researchers define voice as the ability to tell your own story in a way that clarifies oppression (Knaus, 2009), and the ability to speak with the right to be heard (Thomson, 2008). Operationally, voice, in addition to promoting action, also includes components of reflection, discussion, dialogue, and leadership on topics of concern for the participant, not the facilitator (McGregor, 2007). By grounding education in real-life contexts, adult learners develop agency for issues relevant to themselves through the creation of knowledge (Henkin, Harmon, & Pate, 2011). Such focus on student voice has become an important movement in education for "the development of pre-figurative democratic practice... for a more just and vibrant society" (Fielding, 2004, p. 198). The promotion of participant voice to address a specific injustice (e.g. environmental) is not simply a task confined to the classroom; it necessitates an examination and transformation of the discourses of environmental justice outside of the classroom. Adult learners in a literacy program, becoming conscious of their circumstances and oppressions as Freire describes (Fielding, 2004, p. 198), often want to act on their heightened awareness to research, articulate and advocate around issues affecting them (Fullan, Langworthy, Barber, & Ma, 2014).

In this study we use a type of critical discourse analysis that examines narratives as discourse (Rudman, 2013). The narratives in this case are the phototexts produced by Hispanic/Latina mothers of children with asthma. Discourses are the patterned and linked systems of text, talk, and action located within a social setting (D. Allen & Hardin, 2001), in this case an adult, English language learners program for first generation Mexican-American mothers of children with asthma. Using a critical discourse analysis methodology we can examine the



ways power-relations constrain or promote one discourse over another. Some discourses will have a greater impact in shaping narratives than others. For example western medical discourses about asthma management may interrupt, alter, or minimize the importance of traditional belief system discourses on asthma therapies for new immigrants. Thus critical narrative analysis allows for an examination of not just of what was said by these women, but also an interrogation of how their voice might be constrained by other dominant discourses. Thus the objectivity of the analysis and interpretation of this data is highly dependent on inter-researcher reflexivity and the social contexts where such data is collected (Wodak & Meyer, 2009). Discourses only exist within social contexts so that the discussion of setting and the photovoice process is an important aspect of the analysis. The construction of discourses can be described by the words, the styles of speech the participants use, and their use of photographs to create these narratives.

Critical narrative analysis considers texts created by participants to be not only a representation of self as subject and a representation of audience, but also as a claim for legitimacy for a particular stand. Narratives are defined as constituting socially constructed beliefs about the way the world is/or should be, and are a form of social action and performance (Rudman, 2013). Participants use narratives as a way of shortening the distance between themselves and the audience, in order to advance a social position (Barthes & Duisit, 1975; Souto-Manning, 2013). As such, narratives include tensions between participant and audience in relation to how such a social position is advanced, and how a participant negotiates, contests, or otherwise dialogues with dominant discourses (for example, dominant discourses concerning class, discrimination, gender, and environmental control for asthma management). An examination of such narratives can reveal important knowledge concerning power-relations between the participant, their audience and the ideologies inherent in asthma management. This analysis was informed by the theoretical approaches to narrative analysis that consider word choice, text construction, and discursive responses to situational context as important evidence for existing power-relations (Fairclough, 2009; Jager & Maier, 2009; Rudman, 2013).

Critical narrative analysis provides opportunities for a deeper investigation of Hispanic/Latina mothers' stories and practices of environmental modification within the context of various oppressions. A dialogic demographic interview was conducted to give participants an opportunity to identify which aspects of their demographic profile were most important for their identities (Boutain, 2014). This type of demographic interview enhances understanding of participant perspective and participant voice. The photovoice method provided the process by which participants could collectively use their voices to explore participatory action for change for their children with asthma.

## METHODS

The Internal Review Board of the MultiCare Health System approved this research study for human subjects research. Using a photovoice design, Hispanic/Latina mothers of children with asthma took, discussed, and disseminated photographs and text, or *phototexts*, depicting barriers and facilitators to asthma management. Eleven adult women studying in an ESOL program were identified for this study because of their prior involvement with an asthma home visiting program. Participants met three times for a discussion facilitated in Spanish and English using a bicultural interpreter in addition to one of the investigators. In the first meeting, participants completed an empowerment survey with the following subscales: Self-esteem/self -

efficacy, power-powerlessness, community activism and autonomy, optimism and control over the future, and righteous anger (Rogers, Chamberlin, Ellison, & Crean, 1997). Participants discussed the difficulties of managing asthma, and were briefly trained in taking photographs using a standard 16-megapixel digital-zoom camera (valued between \$50 and \$80). The women took their cameras home and used the following prompt to help them take photographs: "Take pictures of people, places, or things that support or concern you in caring for your child with asthma." In the second meeting, participants' memory cards were loaded onto a laptop and projected onto a wall in the meeting room. A QuickTime recording of both the slides and the discussion was made. Each participant chose as many photographs from their memory card as they wanted to discuss with the group. The group discussion was structured using the SHOWeD questioning strategy suggested by Wang and Burris (1997): 1) what do you See here; 2) What is really Happening; 3) How does this relate to Our lives; 4) Why does this problem or strength exist, and 5) What can we Do about it?

Participants were asked to identify up to three photographs that they might want to have printed to make a phototext out of in the next meeting. In the third and final meeting, participants discussed the new photographs they had taken and then made a final selection of up to four photographs for display. These photographs were printed out on a portable printer and each participant wrote down both a title and text to accompany their selected photographs. Participants were allowed to write in either Spanish or English and were video-recorded "presenting" their photo-texts to the group. The interpreter prepared texts for each photograph by both preserving the way the participants wrote the title (i.e. punctuation, capitalization etc...), and by translating the texts into either Spanish or English, making sure that grammar was correct. She also included a transcript of the video recording (included in quotation marks) as part of the complete phototext if the participant script for the recording was different from their written text.

Each phototext (including the title, image, and text) was analyzed as a narrative by the research team. The team met after the first and second analysis round to compare findings, discuss insights, and focus analytic strategies. After an initial read-through to appreciate the context and content of each narrative we identified the particular subject position(s) being used by the author of each narrative. For example, if the author used words like "my child" then one of the subject positions they were taking was that of a parent, or if the intent of the narrative was informational and instructional, then the author's subject position was as a teacher. In our next read-through of the phototexts we asked how well these narratives conformed to dominant narratives concerning asthma management and identified tensions that may be acting to disrupt these narratives; for example, if the content in a photograph (high humidity) did not match the narrative (keep humidity low), or if the text (hospitals are friendly places) did not conform to our understandings of dominant discourses (hospitals are scary).

Subsequent analysis took the form of examining these narrative structures in terms of: 1) the subject and location of the visual image; 2) the objects, actions, and events described in the titles; 3) the persons, actions, and events described in these texts; and 4) the explanations used to justify these actions and events; and 5) the type of tension inherent in either the disruption between photograph and text or between text and dominant narrative.

Our critical narrative approach emphasizes situating - in - context, critical distance, and continuous self-reflection to assist in the identification of the patterning of discourses (Wodak & Meyer, 2009). To accomplish situating the voices of the participants in context a faculty member



from the family literacy program was invited to be on the analysis team and we paid special attention to the environments and situations displayed in the photographs. Critical distance was achieved through multiple readings of the phototexts, and the lead researcher referred to a reflective journal kept during recruitment, data collection, and analysis.

## RESULTS

### Sample

Eleven women participated in the project and produced 32 phototexts for display to the community and policymakers. All of the women were born in Mexico, had at least one child with asthma, and self-identified as of Hispanic/Latina ethnicity. Women were, on average, 35 years of age (Range: 26-41). The majority (n=9, 82%) reported Spanish as their preferred language. The highest level of education completed in school was, on average, 8.7 years (Range: 6-12). Despite the very small sample, these demographic characteristics are representative of Mexican immigrant parents with children with asthma (American Lung Association, 2011; Camarota, 2012). When asked what parts of their demographic identity meant the most to them in terms of caring for their child with asthma, education was most frequently selected (n=8, 73%), followed by ethnicity (n=5, 46%), age (n=4, 36%), Mexican birthplace (n=4, 36%), gender (n=3, 27%) and being able to speak Spanish (n=2, 18%).

Ten out of eleven women completed a translated version of an English, 25-question, personal empowerment survey at the beginning of the study (Rogers et al., 1997). The average score, on a scale from 1 (low) and 4 (high), was 3.1. Among the five factors, the scores, in parentheses, averaged: 1) Self-esteem/Self-efficacy (3.5); 2) Power- Powerlessness (2.7); 3) Community Activism and Autonomy (3.3); 4) Optimism and Control over the Future (3.3); 5) Righteous Anger (1.9).

The women reported having "some" experience taking pictures (Average 2.6, Range 1-5, with 1 being no experience). Two of eleven women owned a camera (18%). Most women (n=10, 91%) had previously received an asthma home visit participated through the local health department.

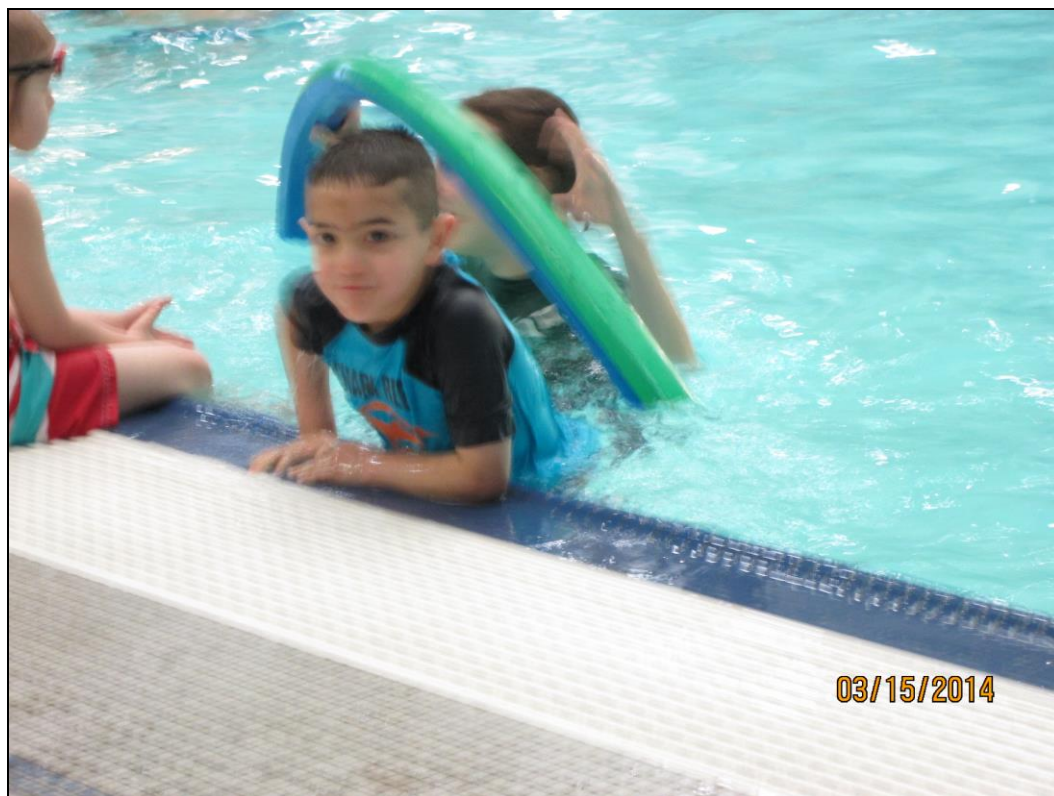
### Exemplar phototexts

At the conclusion of the photovoice sessions, the participants presented their selected phototexts (n=32) to four audiences: first to their family members and close friends in a session held at the same building where we had conducted the sessions; second to health leaders and nursing students at a local university; third to a statewide conference for asthma; and finally, under their own initiative and outside of the involvement from the research team, to their own classmates in their educational program as part of their final project for the year. The participants identified four phototexts to use in disseminating their voice on asthma management to wider audiences, such as through this manuscript: 1) "Actividad Fisica (Physical Activity)" (Figure 1), 2) "Pecera (Fish tank)" (Figure 2), 3) "El Moho (Mold)", (Figure 3) and 4) "Prohibir Fumar en los Parques (Banning Smoking in Parks)" (Figure 4). These phototexts serve as exemplars of phototexts as narratives.

The first phototext (Figure 1) is entitled "Actividad Fisica (Physical Activity)" and depicts children swimming at a pool. One child is looking straight at the camera and appears to be lifting himself out of the pool. There is a blue "noodle" swimming toy held in an arc around his head. The translated text begins with "As a mom concerned with the health of my child" and

then discusses the importance of considering “options for my child to be active”. Swimming is presented in this phototext as an example activity. The phototext also goes on to explain that this form of physical activity helps strengthen his nervous system, relieve stress, thus improving her son’s asthma.

Figure 1. Actividad Fisica, Physical Activity



“Actividad Física”

Como mama preocupada por la salud de mi hijo, busco opciones para que mi hijo pueda estar activo. La actividad física para un niño con asma es muy importante; en esta foto mi hijo está tomando clases de natación. La natación ayuda a fortalecer su sistema nervioso por lo que estar sin estrés ayuda a mejorar su problema de asma.

"Physical Activity"

As a mom concerned about the health of my child, I seek options for my child to be active. Physical activity for a child with asthma is very important; in this picture my son is taking swimming lessons. Swimming helps to strengthen his nervous system and have no stress this helps improve his asthma problem.

The second phototext (Figure 2) is entitled "Pecera (Fish tank)" and depicts an aquarium style fish tank with four fish and some rocks and plants. In this phototext the participant uses the fish tank as a metaphor to describe her understanding that a child having an asthma attack must feel "like a fish without water." She also gives a practical reason for the fish tank in an orally stated description of the photograph by stating that because her children have asthma their best option for pets are fish.

Figure 2. Pecera, Fish Tank



Pecera

Yo siento que un pez sin agua es como un niño cuando tiene ataque de asma. "Mis hijos quieren tener animales como mascotas en la casa pero no podemos por el asma de mis niños, por eso cada uno de ellos tiene un pez como mascota."

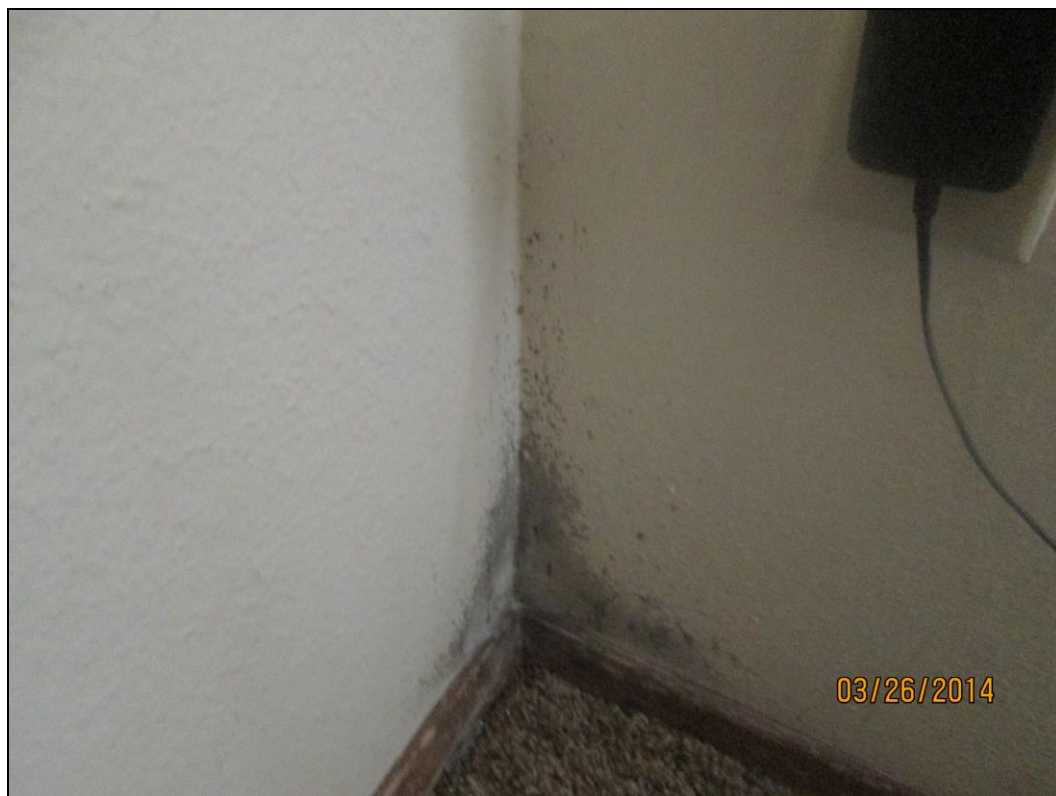
Fish Tank

I feel like a fish without water is the same with a child that has asthma attack. "My kids want to have animals as pets in the house but we can't for my children's asthma, so each has a pet fish."

In the third phototext (Figure 3), entitled "El Mojo (Mold)" the participant uses the photograph to describe the problem she has with mold in the winter. The photograph is a picture of a lower corner of a room with peeling trim and black mold. She explains that mold "releases a

bad odor that causes many allergies”, thus causing “great harm” to her children. She ends her narrative discussing the importance of cleaning up the mold.

Figure 3. El Moho, Mold



“El Moho”

Este es el problema que tengo en el invierno. El moho hace mucho daño a mis niños, porque suelta un mal olor que provoca muchas alergias, por eso es muy importante limpiarlo.

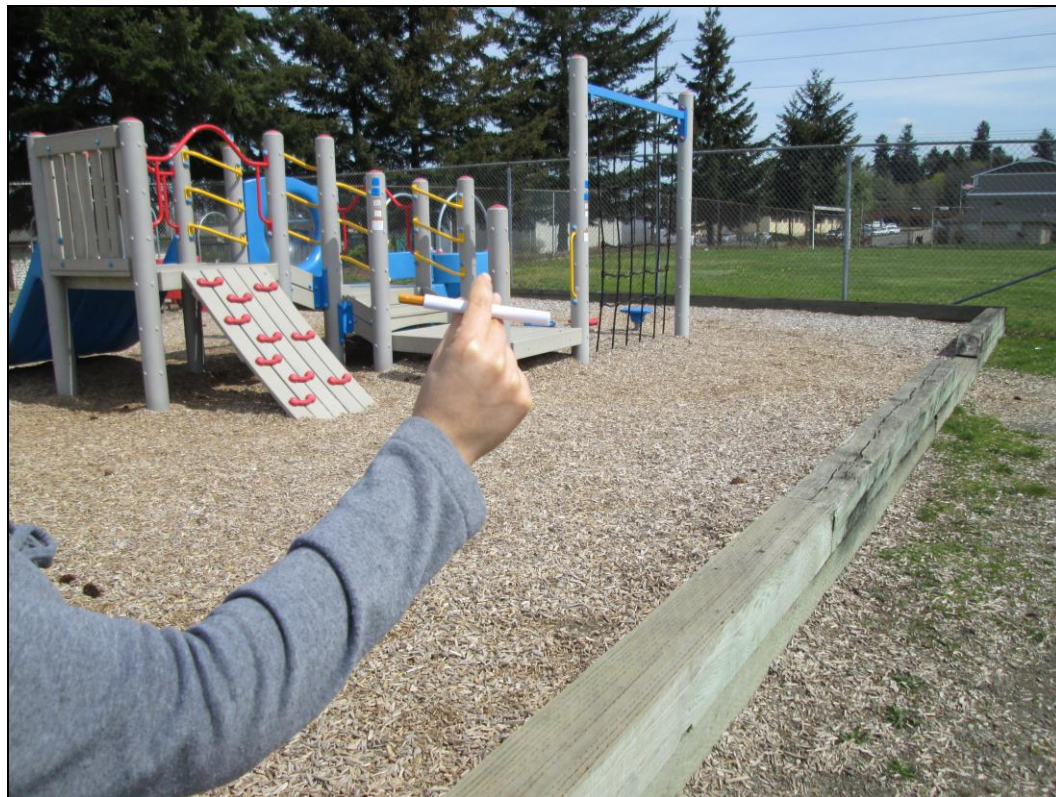
"Mold"

This is the problem that I have in the winter. Mold does great harm to my children, because it releases a bad odor that causes many allergies, so it is very important to clean it.

The last phototext (Figure 4) the participants prioritized to share with others is a picture of an outdoor play structure in a park with a participant’s hand holding an unlit cigarette. The phototext is entitled “Prohibir Fumar en los Parques (Banning Smoking in Parks)”. In the text the participant discusses how she and her child are exposed to cigarette smoke in outdoor parks and how that causes her to have to leave the park. She then expresses a desire for a “law to be passed banning smoking in public places near children”.



Figure 4. Prohibir Fumar en los Parques, Banning Smoking in Parks



**Prohibir Fumar en los Parques**

Yo tome esta fotografía porque cuando llevo a mis niños al parque a jugar, hay veces que hay gente fumando en el parque. Uno de mis niños tiene asma por lo tanto no puede oler el humo de cigarro y por ese problema tenemos que irnos del parque. Me gustaría que pasaran una ley que prohibiera fumar en lugares públicos, cerca de los niños.

**Banning Smoking in Parks**

I took this photograph because when I take my kids to the park to play, there are times when people are smoking in the park. One of my children has asthma so he cannot smell cigarette smoke and that causes us to leave the park. I would like a law to be passed

**Subject Positions**

Participants took on different subject positions in relation to the reader. These subject positions varied between being a teacher (n=8) or a parent (n=7), a combination of both (n=9), or



combinations of other subject positions. These other subject positions included parent advocate (n=2), teacher/advocate (n=2), teacher/investigator (n=1), and parent/storyteller (n=4).

### Narrative structure

#### *Phototext title, setting, and topic*

Participants used multiple strategies to construct their phototexts. Six of the photographs included pictures of family members and children. Photographs included a variety of settings including the home environment (n=18) and other indoor settings (n=5), including two taken at a local pool and one in the hospital. Photographs were also taken outdoors (n=7), including parks and playgrounds (n=2). Two were taken indoors looking outdoors (Table 1).

Table 1. Photograph title, setting and topic

<b>Photograph Title</b>	<b>Setting</b>	<b>Topic</b>
Grass Pollen	Outdoors	Object - pollen
Doing some exercise is good!	Outdoors	Lesson - playground exercise
The Dangers of Mold!	Outdoors	Lesson - avoiding mold
Signs	Indoors-other	Object - no smoking sign
Fan	Indoors-home	Object -ceiling extractor fan
The fan is very important	Indoors-home	Lesson - ventilation
Keep Stuffed Animals Clean	Indoors-home	Lesson - putting bags around stuffed animals
Medicine to Reach	Indoors-home	Action - treating an attack
Fresh Air	Indoor/Outdoor	Object - air outside
Our House	Indoors-home	Object - hygrometer
Cleaning	Indoors-home	Action - Cleaning mold
Exercise	Indoors-pool	Action -swimming exercise
Security	Indoors-other	Action - Family reaction to an attack
Getting out of the Routine: "The Country"	Outdoors	Event - children's visit to the farm
✓"Physical Activity"	Indoors-pool	Action-swimming exercise
✓"Mold"	Indoors-home	Object - mold in corner of a room
"Cleaning"	Indoors-home	Action -cleaning for mold

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"My Child Crying"	Indoors-home	Event - evening nebulizer treatment
Keeping the Air Clean in our house	Outdoors	Action - leaving shoes outside
✓Banning Smoking in Parks	Outdoors	Action - banning smoking around children
No Smoking inside the house or cars	Indoors-home	Action - banning smoking around children
No Dogs on Furniture	Indoors-home	Action - keeping dogs off furniture
Hospital	Indoor/Outdoor	Object - Rainy weather as risks for asthma
"Child in the Hospital"	Indoors-other	Event - a child's surgery
"Worst Stage for Allergies"	Outdoors	Lesson - Seasonal pollen
"Saw dust at Home"	Indoors-home	Object - chop sawdust
"Black Spot"	Indoors-home	Object - mold on ceiling corner
✓Fish tank	Indoors-home	Object - a fish tank with fish
Plush Toys	Indoors-home	Object - plush bear
* Clean Air - The Heaters *	Indoors-home	Object - air heater
"Avoid Harmful Chemicals"	Indoors-home	Lesson - toxic household cleaners
"The Dangers of Mold in the House"	Indoors-home	Lesson - cleaning mold on the windows

✓ Selected by participants for dissemination in publication

### Titles

The titles that participants used below their phototexts either described objects (n=12), actions (n=10), lessons (n=7), or recalled an event (n=3), associated with asthma management (Table 1). The objects described were pollen, a no smoking sign, ceiling fans/heaters (n=2), outdoor air, a hygrometer (humidity meter), mold (n=2), rainy weather, chop sawdust, a fishtank, and a plush bear. For example, in the phototext entitled "Nuestra Casa (Our House)" a hygrometer is photographed on a table in front of a speaker and next to what appears to be an iPod-Mini player. The hygrometer almost fills the frame with a visible temperature of 66 and humidity reading of 65. The text states: "It is important to have a hygrometer at home, to know the temperature and humidity level inside the house" (Figure 5).

Figure 5. "Nuestra Casa (Our House)"



Nuestra Casa

Es importante tener en la casa un medidor para saber la temperatura y la humedad

Our House

It is important to have a hygrometer at home, to know the temperature and humidity level inside the house.

The actions described were treating/responding to an attack (n=2), cleaning mold (n=2), swimming for exercise (n=2), leaving shoes outside the house, banning smoking around children (n=2), and keeping dogs off furniture. The lessons promoted the benefits of exercise, mold avoidance (n=2), ventilation, keeping stuffed animals in plastic bags, the seasonal risks of pollen, and the risks of exposure to toxic household cleaners. The three events described in the titles were: "Getting out of the Routine 'The Country'", "My Child Crying", and "Child in the Hospital".

#### Narrative contexts

Inside the texts, participants described a variety of persons (n=102) including: themselves (as "I or me") (n=26); other persons and parents (n=22); family members and relatives (n=19); other children with asthma (n=8); other children (n=7); other persons with asthma (n=4); hospital staff or doctors and public health professionals (n=4), and their children with asthma (n=2).

Participants described different actions (n=34) concerning the management of asthma including environmental control (n=27); exercise (n=3), medication (n=2), and healthcare provider communication (n=2). For example, in a phototext entitled "La Limpieza (Cleaning)" a participant took a photograph of her partner cleaning behind a toilet, with several extra black rags arranged on the toilet lid (Figure 6). She states, "It is important to keep the house clean and more where there is mildew so we do not inhale the odor."

Figure 6. "La Limpieza (Cleaning)"



La Limpieza

Es muy necesario mantener limpia la casa, y mas donde hay moho así no respiramos el olor.

Cleaning

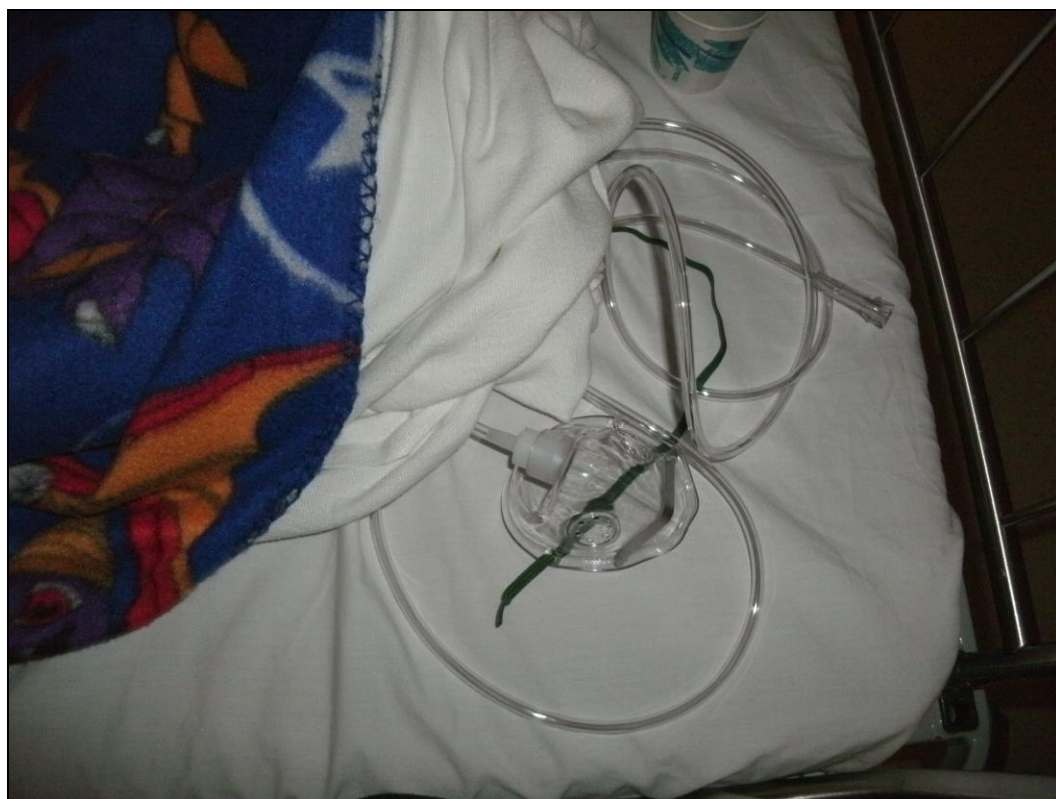
It is important to keep the house clean and more where there is mildew so that we do not inhale the odor.

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Participants used the phototexts to discuss their experiences of events (n=40) concerning asthma management. Some categories of events were exposure events to mold or dust (n=10); exercise events such as lessons or play (n=10); asthma events such as attacks and using the nebulizer (n=6); visits to the hospital and other places such as the park (n=5); home events such as working or cleaning (n=3); pet events such as getting a pet (n=2); weather events such as the rain and allergy season (n=2); and a future event of passing a law banning smoking (n=2). For example, one participant uses a phototext to reflect on an event she experienced in hospital with her child. Her photograph shows what appear to be medical tubing and a facemask, a child's hospital bed, and a paper cup entitled "Nino en el Hospital (Child in the Hospital)" (Figure 7). In the text she explains the special care parents need to take prior to surgery for a child with asthma stating, "It is very important that as a parent, you should let the doctor know that your child has asthma before surgery so that he or she can receive the treatment of asthma before surgery." This phototext is also an example of a lesson from a participant taking on the subject position of teacher.

Figure 7. " Nino en el Hospital (Child in the Hospital)"





"Nino en el Hospital"

Es muy importante que uno como padre, le haga saber al Doctor que tu niño tiene asma, antes de una cirugía para que el o ella pueda recibir el tratamiento de asma antes de la cirugía.

"Child in the Hospital"

It is very important that as a parent, you should let the doctor know that your child has asthma before surgery so that he or she can receive the treatment of asthma before surgery.

### Narrative explanations and tensions

Participants used a variety of explanations (n=24) for actions and events that described some of the challenges and facilitators they faced in managing asthma. These explanations included meteorological (n=2), airborne dust/allergens/irritants (n=8), physical (n=3), medical (n=2), social/emotional (n=4), and chemical (n=5) (Table 2).

Table 2: Phototext explanations

<b>Explanation (number of texts)</b>	<b>Texts</b>
Meteorological (2)	"raining... makes your asthma worse", "he can walk free... all thanks to the warmer weather"
Airborne (8)	"cleaner air in our homes for good health... for children with asthma", "dust ... provokes coughing, and this triggers asthma attacks", "saw dust powder can worsen the health of ... those who have asthma", "[he] has asthma so he cannot smell cigarette smoke", "pollen... affects the airways", "it [the dryer] causes my child to have a bad cough", "we do not inhale the odor", "mold...odor...causes many allergies"
Physical (3)	"when you exercise too much asthma attacks come", "Being sick with asthma does not mean they have to be inactive", "swimming.. Helps strengthen the lungs",
Medical (2)	"medicine for people who have asthma", "treatment of asthma before surgery"
Stress/nervous system (4)	"When he feels sick [with asthma], being close to us makes him feel more comfortable", "no stress...improves his asthma problem", "relaxing... he can walk free", "swimming... helps strengthen his nervous system",
Toxic/chemical (5)	"babies that crawl... Put [everything] into their mouths", "shoes bring much dirt and debris from outside", " dogs shed[ing] and urinate[ing] on furniture [is] very bad for children with asthma", "we can't [have pets] for my children's asthma", "cleaning chemicals ... are harmful to ... health"

Participant phototexts were analyzed for the ways the photo, title, and texts dialogued with existing asthma discourses (Table 3). Narrative tensions between what was pictured in the photographs and what was discussed in the texts were noted (n=24). Participants made statements, for example, that contested existing discourses on asthma knowledge (n=6). In a phototext titled "La Limpieza (Cleaning)" a participant shows both vinegar and bleach stating

"these are the products I use" when prevailing asthma knowledge discourages the use of chlorine bleach because while useful in a safe ratio for cleaning mold, bleach is an irritant and can exacerbate asthma attacks.

Participants used phototexts to dialogue with dominant discourses on asthma management by identifying new threats (n=2) including pets on furniture and workers bringing sawdust home on their clothes. They also identified new policies (n=3) including banning smoking near children and in cars. One participant used a phototext entitled "Security" which pictured her family to argue that parents would always "act faster" to help their child compared to anyone else. Two participants contested the discourses that hold hospitals and health systems to be unfriendly places, "the staff...is really friendly"; or that doctors know everything "you should let your doctor know...". Another participant used a phototext to dialogue with the identity of asthma as being a sickness "[being active] helps them forget they are sick." One participant dialogued with the economic discourses of asthma in a phototext where she taught others about "very affordable" cleaning products (Table 3).

Table 3. Narrative tensions

<b>Tension</b>	<b>Text [explanation]</b>	<b>n</b>
Asthma Knowledge	"... he can walk free...[in Oregon]... all thanks to the warmer weather than here in Tacoma", "it was raining and sometimes this makes your children's asthma worse", "get some fresh air", "clean with vinegar and chlorine", "Clean where dust has fallen from the ceiling and discard what has been used", "knowing the temperature and humidity level" [but hygrometer reading shows high humidity (65%)], "use [ing] the dryer causes my child to have a bad cough" [but not questioning that the vent pictured may not be properly working]	6
New threat	"... many parents have dogs in their homes and that is very bad for children with asthma, because dogs shed and urinate on furniture. "It is important for people who work at a sawmill to change clothes because their work clothes may bring saw dust residue. People who work at home should also have a place designated to work because saw dust powder can worsen the health of your family especially for those who have asthma and allergies."	2
New policies	"... a law to be passed banning smoking in public places near children...", "... a law banning smoking around children..", " a law that prohibits smoking in the car with kids"	3
Parenting	"He knows that anyone near can help him if he has an asthma attack but he knows his parents will act faster to help."	1
Healthcare quality	"The staff at the hospital is really friendly; you do not feel shy to ask if you are not sure about something...", "you should let the doctor know that your child has asthma before surgery..."	2
Illness identity	"...[being active] helps them forget they are sick.",	1
Economics	"These are the products I use and are very affordable"	1
Total		24

## DISCUSSION

The Hispanic/Latina mothers in this study used photovoice to represent and encourage action in their peers to address environmental threats from asthma. Therefore under their own initiative and outside of the involvement from the research team, they presented their phototexts back to their own classmates in their educational program as part of their final project for the year. By taking this initiative they appeared to be using the opportunity this research study had afforded them to broker solidarity with other immigrant mothers in their program. This was surprising, but not unexpected, given that from the dialogic demographic interview we observed that the women viewed education as central to their ability to manage asthma.

At the outset of this study, the women's empowerment was high in terms of self-efficacy, community activism, and control over the future, and moderate in terms of feelings of powerlessness, and righteous anger. In developing the empowerment scale, Rogers and colleagues (1997, p. 1042) use MacLean's (1995) definition of empowerment: "the action of the disempowered to become empowered." It is possible that previous participation in an asthma program contributed to this strong sense of empowerment. Although an endpoint survey was not made, the women's independent act of presenting their phototexts to their peers supports the potential for the photovoice process to increase feelings of empowerment (Duffy, 2011). In an examination of empowerment discourses used by Latino farmworkers in central Washington State, Postma (2008) found that farmworkers used discourses to strengthen their political voice, represent community interests, and advocate on behalf of others. In this project it seems that by providing an avenue for the women to educate others with similar experiences through the use of phototexts, the women reflected these three empowerment discourses through expressing solidarity with other parents who have children with asthma, investigating community-specific concerns, and advocating for improvements to the environment on behalf of their children.

The participants took photographs that described immediate environmental threats associated with indoor and outdoor environments such as mold, and described actions parents could take to reduce these threats. Their titles used short phrases to describe important objects in these environments and to provide lessons to the reader that included warnings and practical actions to take, such as swimming as "physical activity for the child with asthma" (Figure 1). In addition to describing their environments, participants used their photographs to identify themselves through their actions and the events that occurred in their family's lives. These events provided additional ways for the parents to tell their own stories about how they negotiate the challenges of parenting a child with asthma. Their descriptions of practical and affordable actions to mitigate environmental and other threats for their children are similar to what was described by other Hispanic/Latina mothers caring for children with asthma in Los Angeles (Kueny et al., 2013). In the Kueny et al. study, the authors found that the women prevailed over these threats by making simple changes. Despite what Kueny et al. and others (Berg et al., 2007) regard as the significant challenge of being a new immigrant and managing a complex disease such as asthma, the women in our study found simple ways to make changes to improve their environments that were "very affordable."

Participants used a variety of techniques, including storytelling, as ways to develop their own narrative and explanations for the events occurring within their lives from which to teach others about asthma management. Gubrium (2013) discusses how photovoice enables participants in establishing a "strategic authenticity" for promoting their voice within the context

and frame of their emerging awareness of larger, more dominant narratives. The tension in the phototext entitled "Pecera (Fishbowl)" (Figure 2) is an illustration of this. The phototext contains two texts: one written and one spoken by the participant. In the first text, the participant uses the metaphor of a fishbowl to tell the story of what she thinks asthma is like for her child, and in the second text she gives a very practical suggestion for parents to replace their furry pets with a "pet fish." The use of metaphors for describing asthma has been discussed elsewhere with respect to the ways African American children describe asthma to gain efficacy (Peterson & Sterling, 2009), but here a metaphor is used instead for empowering other parents who *feel the same way* through a practical tip about pet ownership.

This photovoice study enabled participants to co-create knowledge about environmental threats, opening the door to collective awareness, advocacy and transformative actions for environmental justice (Catalani & Minkler, 2010). That said, other than challenging smoking policy, the phototexts the women created did not overtly challenge existing structural inequities. The marginalization of political voice in new immigrants has been a central concern in the education literature (Bloemraad, 2006; Jones-Correa, 1998). Some photovoice researchers have found that recent immigrants to the U.S. are less likely to directly confront such oppressions in photovoice studies because of concerns that such overt criticism of the host country might jeopardize their status as new immigrants (Stevens, 2010). Further, Prins (2010) suggested in her ethnography of adult literacy and empowerment within the *campesinos* of El Salvador that researchers using photovoice may encounter "contradictory potential" in the method. On the one hand, subjugated knowledge is revealed or given voice, but that very revelation might also increase the surveillance and control of that subject. Participants in our study may have been naturally cognizant of such risks, as was demonstrated by their selective use of phototexts to describe both their home lives (for example being structured around impersonal environmental threats versus identifying persons perhaps responsible for those threats) and their ideas about political transformation (for example being focused on air quality policy versus improving immigrant rights). Thus their calls to action evinced through their phototexts were essentially practical and grounded in their reality. These phototexts may be sources of resistance and activism inside what Pink (2012, p. 8) has described as their "everyday life as the way life is lived out in the home on an everyday basis." For example, phototexts reflected participants taking daily actions to address an array of threats (Table 2) such as staying out of the rain, cleaning, taking ones shoes off before entering the home, exercising, bagging plush toys, and keeping pets off the furniture (Table 1). Thus, the transformative potential of their phototexts may reside more in the representation of these everyday actions than in dangerous and risky challenges to the authorities concerning policy change.

The photovoice method encouraged the women's inventive use of staged photographs to represent threats. This may be a way for them to resist dominant discourses and call for policy action against environmental threats. For example, one participant took a photograph of people smoking in a park by framing a fake cigarette in her hand (Figure 4). Phototexts created in this way may have given participants an opportunity to confront particular threats in an ethically safe manner that did not put themselves, their subjects, or their children in danger or at risk of embarrassment or community rejection. Other photovoice researchers have commented on the importance of protecting participants and the subjects of their photographs (Q. Allen, 2012; Prins, 2010; Wang & Redwood-Jones, 2001). These phototexts demonstrate how photovoice

enabled participants in this study to creatively negotiate such threats to advance arguments and ideas that confronted environmental justice issues such as second-hand smoke exposure in parks.

As noted in the tensions analyzed, while the structural inequities such as discrimination, gender, and class were missing from their texts, participants dialogued (i.e. promoting, challenging, or providing conflicting interpretations) with a variety of dominant discourses in asthma and the care of children to define their own identities. Some of these dominant discourses concern healthcare provider relations, medication-use, education, environmental threats and control, physical and mental health, and parental advocacy for children as described in Tables 2 and 3. Participants used their phototexts to promote many of these discourses including those around the inhalation of toxins, experiences of weather-related symptoms, the importance of physical activity, the importance of medication, experiences of social and emotional stress, and advocacy for smoke free environments. In other phototexts the message appeared to dialogue with dominant discourses of asthma knowledge in interesting ways. For example, some phototexts showed mold on the ceiling, a corner of a room, and around a window (Phototexts 17,28, and 33 in Table 1. and in Figure 3), and a phototext #6 entitled, "Ventilador, (Fan)" a parent shows a ceiling fan and a sprinkler head and in the text states "...when I use the dryer it causes my child to have a bad cough". The sprinkler head indicates that the room is likely in a rented apartment complex, yet the phototext does not discuss whether the participant has asked the landlord to fix the fan. Most participants had experienced a home visit with an asthma outreach worker but while the photographs provide evidence of some serious need for mold removal and improved ventilation, the women do not discuss these responsibilities or tenant rights in their texts.

Other important disruptions of asthma management discourses included knowledge and practices concerning clean homes, humidity, and the outdoor environment. The women used phototexts to describe the work of cleaning that sometimes included the use of bleach (n=2) when the use of bleach is a known source of occupational exposure for asthma in house cleaners (Siracusa et al., 2013) and not recommended by asthma outreach programs. However, there is some debate in the literature about the protective effects of the use of bleach for children (Nickmilder, Carbonnelle, & Bernard, 2007). Given that many Hispanic/Latina immigrants first find work in this country as house cleaners, the variety of phototexts in this study that concerned the discourse of housecleaning is not surprising. It is interesting that there is actually very little discussion in the environmental justice literature about the possible targeting of Hispanic/Latinas by the cleaning-products industry with bleach or other cleaning products that may be more toxic than those marketed to non-Hispanic Whites.

The phototexts also appeared to disrupt dominant discourses with contextually specific issues important to participants' occupational identities. One phototext included a photograph of a chop-saw and sawdust inside a home and discussed both occupational exposures for those working in the wood products industry, a known threat for asthma in the Pacific Northwest where Red Cedar is used (Jacobsen, Schaumburg, Sigsgaard, & Schlunssen, 2010) and the environmental threats of saw-dust carried home on work clothes and from saw dust created by "people who work at home because, "...saw dust powder can worsen the health of your family especially for those who have asthma and allergies." While the transport of environmental threats such as pesticides have been investigated in research on asthma (Carter-Pokras, Zambrana,



Poppell, Logie, & Guerrero-Preston, 2007), the two sources of threats from wood dust (being carried home and produced at home) have not been investigated.

The photovoice process has been well described in multiple articles, yet few have described how to bridge the challenges of promoting the voice of marginalized communities in a bilingual context, including the use of projection and desktop software such as QuickTime to use screen capturing techniques to record sessions. This study advances the development of the photovoice process in three ways: (1) by including the original (Spanish) text alongside the English translation, (2) by including both written text and orally-produced text in the development of phototexts, and (3) by explicitly identifying which phototexts were selected for dissemination by participants. These processes helped in prompting expressions of critical consciousness and solidarity amongst the women and assisted in focusing the dissemination of their voice to Spanish- and English-speaking populations (Foster-Fishman et al., 2005).

#### Limitations

The bilingual nature of this project prompted some questions amongst the researchers on how accurate a critical narrative analysis can be in working with translated material. In addition the participants may not have been accustomed to writing so that their responses may have conformed more closely to what they thought the facilitator wanted. To mitigate this we provided the opportunity for oral presentation to create the texts, but through the translation process the word choice and sentence structure may have changed. We attempted to account for these difficulties by consulting with Critical Latina studies professionals and by including an ESOL educator on our writing team.

The empowerment survey (Rogers et al., 1997) we used was professionally translated by us into Spanish for the purposes of this study. It has not been validated among Spanish-speaking populations. In addition, logistical issues prevented us from collecting the survey again after the project concluded. This limited our ability to measure change in empowerment amongst participants.

This study was a small focus-group study with a group of Hispanic/Latina women from an English language education program, some of who had previously received some asthma education through involvement in an asthma home visiting program. Aside from perhaps not being a typical first generation immigrant family because of this, our demographic survey was not designed to explore their previous asthma education, their immigration status, home ownership, occupational status or family structure. Thus we were only able to analyze the phototexts for indications of the contexts of participants' lives. A more thorough demographic survey may have provided us with additional insight into the structural strengths or constraints experienced by our participants.

As a qualitative approach, this study describes the opinions and attitudes of a small sample of Hispanic/Latina mothers of children with asthma living in an urban environment. As a critical theoretical approach, researcher-influence on the co-creation of data is assumed and is balanced by reflexive practices used by the researchers. Instead of being generalizable to other populations, this study provides an in-depth examination of the ways one group of women in one community have decided to voice their experiences and concerns for the care of their children with asthma.

## CONCLUSION

The photovoice method has provided a powerful andragogy for inviting and including student voice in ESOL programs, especially around authentic problems related to poverty, housing, education, and occupational oppressions. Hispanic/Latinas in this study positioned themselves as teachers, parents, and advocates in empowering themselves and others in the care of children with asthma. These women challenged or changed dominant discourses concerning asthma with regard to environmental threats and policies that should be implemented for the protection of children. Their use of phototexts was both creative and strategic in the face of the multiple oppressions they experience. Critical discourses warning of household, occupational, and everyday exposures and threats were extensively documented in this process. Photovoice offers a way for Hispanic/Latinas, managing their children's asthma in the face of daily environmental threats, to voice not only their opinions, but express their solidarity with others.

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