

SPECIAL POPULATIONS

Understanding Sibilancias (Wheezing) among Mexican American Parents

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Background. Asthma is one of the most common pediatric chronic diseases in the United States; however, prevalence varies across Latino ethnicities, such as Mexican Americans (MAs). Linguistic and cultural issues may contribute to difficulties in diagnosis. **Methods.** We conducted a qualitative study to assess the comprehension of common words used in a validated asthma questionnaire. The study sample consisted of 40 MA Spanish-speaking parents of 2- to 18-year-old children, with and without asthma, at a community health clinic. **Results.** Regardless of their child's asthma status, the majority of parents (12 [80%] with non-asthmatic children; 16 [64%] with asthmatic children) did not understand common Spanish words used in clinical settings to identify asthma (e.g., wheezing and whistling). Instead, parents used physical symptoms and sounds to describe asthma. **Conclusion.** This exploratory study demonstrates MA parents' limited comprehension of common words used in clinical settings to identify asthma. Future research should examine tools that incorporate visual and auditory descriptions of asthma.

Keywords asthma, Mexican American, qualitative study

Asthma is one of the most prevalent chronic diseases affecting children in the United States, with a lifetime prevalence of 4.3–12% (1). The rates vary geographically, and studies have shown that the prevalence in inner-city populations is even higher, reaching up to 30% (2–4). Some of the suspected reasons for variation in lifetime prevalence, despite the ongoing improvement in recognition and treatment of asthma in children aged 18 and younger, include socioeconomic status (5), urban residence (6), being female (7), and belonging to a minority group (8–12).

Furthermore, some of the differences observed in the prevalence of asthma in minority populations may be explained by linguistic or cultural factors that influence how asthma is identified in children (13). Adequate diagnosis and treatment of asthma relies on the ability of a patient or caregiver to recognize and correctly report symptoms and on the ability of the provider to understand and interpret these symptoms (14). Linguistic misunderstandings may be particularly influential in Latino populations, where there are concerns that asthma is underdiagnosed (15).

Factors specifically associated with underdiagnosis in the Latino population include lack of insurance (16, 17), type of primary care practice (18), the language parents use when completing a screening survey (19), and Mexican American (MA) race/ethnicity (20). The Latino population is usually treated as a homogeneous group due to convention or for sample convenience. However, there is great variability in genetics, socioeconomic status, education, access to care, and demographics within this group (21).

Over the last decade, differences among Latino subgroups have been identified in disease prevalence, morbidity, and mortality, and a better characterization of specific subpopulations will help improve our understanding of asthma.

Although Latinos of Mexican descent are the largest and fastest growing immigrant population in the United States (22), and asthma has become a significant health problem in this group (23), there is still great variability in lifetime prevalence reported in the literature, anywhere from 4.5% up to 14% (24, 25). Therefore, we conducted an exploratory study to understand how Latino parents of Mexican descent of both asthmatic and non-asthmatic children describe asthma.

METHODS

An exploratory qualitative research study based on grounded theory (26) was conducted from October to December 2007 at a community health clinic that serves a high number of MA children covered by Tennessee Medicaid (TennCare). Face-to-face interviews were conducted with Latino parents of Mexican descent with children, asthmatic and non-asthmatic, aged 2 to 18 years. This study was approved by the Institutional Review Board of Vanderbilt University.

Patients

We targeted parents of children over 2 years old because, according to the general consensus, a diagnosis of asthma becomes more certain with increasing age (27). All asthmatic children had been diagnosed by a health-care professional. We included only Spanish-speaking parents older than 18 years of age who self-identified as Latinos of Mexican descent. Excluded from the study were parents of children with developmental delays, cystic fibrosis,

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chronic pulmonary disease, severe neurological impairment, or prematurity.

Following a review of medical charts, the parents of the 40 MA children with asthma were invited to participate by phone or at their child's health-care visit; six were unable to be reached, six did not identify themselves as Latinos of Mexican descent, and three declined to participate ($N = 25$). The parents of non-asthmatic children, as noted by no diagnosis in their patient record, were recruited in the waiting room of the community health clinic; all those approached at the clinic agreed to participate ($N = 15$).

Procedure

The International Study of Asthma and Allergy in Childhood (ISAAC) questionnaire has been used worldwide to measure self-reported prevalence of wheezing and severity of asthma and allergic disease (28) (Table 1). This questionnaire has been validated and translated into Spanish. In this study, parents were given or read a Spanish version of the written ISAAC asthma questionnaire that has been widely used in Mexico (29).

Trained MA bilingual study personnel reviewed the questionnaire with the parent and solicited feedback to ascertain how the parent perceived the meaning of specific words used in the questionnaire, in particular, the word "wheeze," translated as "sibilancia," and the concept of "asthma attack." Throughout the administration of the ISAAC asthma questionnaire, the study personnel wrote down responses and answered any questions the participants raised.

Additional demographic information was obtained as part of the survey, including children's age, parental level of education, length of stay in the United States, and language spoken within and outside the home. Acculturation was measured by the language most frequently used within and outside the home and by the number of years lived in the United States.

Audiotape. After conducting 14 interviews we realized that parents were describing asthma with sound or visual depictions. Thus, we decided to present a 30-second audio recording of a wheeze that had been downloaded from a pulmonary web site (30) to the remaining subsample of

parents. The audio-recorded wheeze was validated by three different health-care providers who confirmed the accuracy of the sound. After playing the recording, interviewers asked parents to describe the sound they were hearing and to tell what the sound was.

Analysis

t-Tests and Fisher's exact test were conducted to examine differences in demographic characteristics between parents of asthmatic children versus those of non-asthmatic children. All interviews were manually coded by a bilingual coder searching for common themes in the parents' descriptions. As per grounded theory (26), interviews were conducted until no new themes emerged. We also examined the frequency of common descriptions/words utilized to characterize both the "sound" and the "look" of asthma.

RESULTS

Our final sample consisted of 40 Latino parents of Mexican descent: 25 parents who had one or more children diagnosed with asthma and 15 parents of non-asthmatic children. Most participants were mothers (35, 87%). Most parents were born in Mexico (38, 95%) and were recent immigrants (<11 years) to the United States (38, 95%) and mainly spoke Spanish within and outside the home (33, 82.5%). Results of *t*-tests indicated that the only significant difference between the two groups was the mean number of years parents had been in the United States. The group with asthmatic children had been in the United States for an average of 11 years while those with non-asthmatic children had been in the United States for a mean of 7 years ($p = .007$) (Table 2).

Lack of Comprehension of Wheeze ("Sibilancia")

Even though 31 (77.5%) of the participating parents had at least a seventh grade education, 20 parents of children with asthma and 11 parents of non-asthmatic children had a hard time reading the questionnaire and preferred it to be read out loud by a bilingual interviewer. Parents found the word "sibilancia" (wheezing) difficult to understand. They often pronounced it wrong and seemed puzzled with the questionnaire.

We found that the majority of Latino parents (16 [64%] with children with asthma; 12 [80%] with children without asthma) did not understand the words commonly used in clinical settings such as wheezing or whistling and asked questions such as "¿Qué es sibilancia?" (What is wheezing?); "Y ¿qué es sibilancia y qué es silbido en el pecho?" (And what is wheezing and what is whistling in the chest?); "¿Qué es sibilancia? ¿El silbido que tiene en el pecho?" (What is wheezing? The sound that his/her chest does?); "¿Qué significa sibilancia, y lo otro?" (What does wheezing mean, and the other?—referring to whistling); "... no entiendo ¿que se le oiga ruido en el pecho?" (... I don't understand, [you mean] that you hear a noise in their chest?); "¿El silbido y la tos es lo mismo?" (Are whistling

TABLE 1.—ISAAC questionnaire.

1. Has your child ever had wheezing or whistling in the chest at any time in the past?
2. Has your child had wheezing or whistling in the chest in the past 12 months?
3. How many attacks of wheezing or whistling has your child had in the past 12 months?
4. In the past 12 months, how often, on average, has your child's sleep been disturbed due to wheezing or whistling?
5. In the past 12 months, has wheezing or whistling ever been severe enough to limit your child's speech to only one or two words at a time between breaths?
6. Has your child ever had asthma?
7. In the past 12 months, has your child's chest sounded wheezy or whistley during or after exercise?
8. In the past 12 months, has your child had a dry cough at night, apart from a cough associated with a cold or chest infection?

TABLE 2.—Differences in Mexican American asthmatic families versus non-asthmatic families (parent respondents).

Demographic characteristics	Asthmatic group (<i>N</i> = 25)	Non-asthmatic group (<i>N</i> = 15)	<i>p</i> -Value ^a
Parents' no. of years in the United States, ^b mean (SD)	11.09 (4.80)	7.03 (3.37)	.007
Parents' no. of years of education, mean (SD)	8.96 (2.21)	8.87 (2.50)	.903
Parents born in the United States, <i>N</i> (%)	2 (8)	0 (0)	.519
Spanish spoken at home and outside of home, <i>N</i> (%)	20 (80)	13 (83)	.691
Parental smoking, <i>N</i> (%)	4 (16)	4 (26)	.444
Both parents Mexican American, <i>N</i> (%)	22 (88)	15 (100)	.279
Low comprehension of "sibilancia" (wheezing) ^c , <i>N</i> (%)	7 (88)	11 (92)	1.000

^aTests of significance conducted: unpaired two-tailed *t*-test for continuous variables; Fisher's exact test for categorical variables.

^b*N* = 23 in the asthmatic group; 2 of the group were born in the United States.

^cSubset of *N* = 8 in the asthmatic group; subset of *N* = 12 in the non-asthmatic group.

and cough the same?); "Sibilancia, no entiendo" (I don't understand wheezing); and "... no entiendo, ¿que si tuvo un ronquido?" (... I don't understand, [you mean] that she/he had snoring/hoarseness/rattling?).

Only two parents translated the word "sibilancias" to English—wheezing—and asked if it meant the same thing: "¿Como un 'wheezing,' pero que es sibilancia?" (like a "wheeze," but what is wheezing?) and "¿Que si mi hijo ha tenido 'wheezing'?" (Has my child had wheezing?).

Description of Visual Appearance and Sound

Parents frequently used physical cues, symptoms, and familiar sounds to describe asthma: "Pues sí, alguna vez tuvo el silbido, el ruido, incluso la niña decía: Ya empezaron los gatos" (Well yes, she had the whistling, the noise, the child would say: The cats have started); "Sí, tenía mucha dificultad para respirar" (Yes, she had a hard time breathing); "que se fatiga al hablar, no lo deja hablar" ([She] gets tired when talking, doesn't allow him/her to talk) (Table 3). It is important to note that the common words and descriptions used by parents of asthmatic children and non-asthmatic children were similar. For example, 16 parents of asthmatic children and 13 parents of non-asthmatic children described a general sound for asthma as "chiflido" or "silbido" (whistling).

Description of the Audio-Recorded Wheezing Sound

Seven of the 16 parents of asthmatic children who listened to the recording described the sound as "silbido" or "pitido" (whistling). Additionally, nine parents of asthmatic children gave physical descriptions like lack of air, shortness of breath, and agitation, and five parents of either asthmatic or non-asthmatic children compared it with familiar sounds, like "a baby crying" or images, like "a fish without water" (Table 4).

Frequency of Episodes

Four of the parents of children with asthma understood the concept of "attacks" to mean severity of a specific episode rather than the frequency of episodes of wheezing, which health-care professionals use for diagnosis. For example, "¡no! ¿cómo ataques asmáticos, asmáticos? ¡no!" (Like asthmatic, asthmatic attacks? No!); "No ha tenido ataques" (He/she has not had attacks); "¿Qué es ataque—que se le va la respiración y se pone morado, no puede respirar?"

TABLE 3.—Description of "asthma" by MA families—Q: Has your child ever had wheezing or whistling in the chest at any time in the past? Describe what I am asking.

General sounds
Asthmatics (<i>N</i> = 25)
"Chiflido/silbido" (whistling), <i>N</i> = 16
"Ronquido" (snoring/hoarseness/rattling), <i>N</i> = 6
"Ruido/sonido" (noise/sound), <i>N</i> = 3
"Wheezing", <i>N</i> = 3
"Chillido" (shrill cry/squeak/squeal), <i>N</i> = 1
"Estridor" (stridor), <i>N</i> = 1
"Congestion" (congestion), <i>N</i> = 1
"Sumbando" (humming/buzzing), <i>N</i> = 1
"Pillaba" (peeping noise), <i>N</i> = 1
Non-asthmatics (<i>N</i> = 15)
"Chiflido/silbido" (whistling), <i>N</i> = 13
"Ronquido" (snoring/hoarseness/rattling), <i>N</i> = 6
"Ruido/sonido" (noise/sound), <i>N</i> = 6
"Chillido" (shrill cry/squeak/squeal), <i>N</i> = 3
"Ahoga" (suffocate/choke), <i>N</i> = 1
Physical findings
Asthmatics (<i>N</i> = 25)
"Tos muy fuerte" (loud/strong cough), <i>N</i> = 3
"Agitado" (agitated/gasping for breath), <i>N</i> = 3
"Dificultad para respirar" (difficulty breathing), <i>N</i> = 1
"Sofocado" (suffocated/choked), <i>N</i> = 1
"Respira bien rápido" (breathes very fast), <i>N</i> = 1
Non-asthmatics (<i>N</i> = 15)
"Flemas/constipado/congestionado" (phlegm/congested), <i>N</i> = 4
"Respiraba muy apretado" (breathing very tight), <i>N</i> = 1
"Dificultad para respirar" (difficulty breathing), <i>N</i> = 1
"Respiración forzada" (forced respiration), <i>N</i> = 1
"Tos" (cough), <i>N</i> = 1
"Acaba el aire" (lack of air), <i>N</i> = 1
"Dolor de pecho" (chest pain), <i>N</i> = 1
Familiar sounds
Asthmatics (<i>N</i> = 25)
"Como vaporera o cafetera" (like a vaporizer or coffee maker), <i>N</i> = 1
"Empiezan los gatitos" (the cats are starting to purr), <i>N</i> = 1
Non-asthmatics (<i>N</i> = 15)
"Gorgorear el pecho, como cuando el agua está hirviendo y empieza a burbujear" (bubbling of the chest, like when the water boils and starts bubbling), <i>N</i> = 1
"Como si tuviera gatitos en el pecho" (purring cats on his chest), <i>N</i> = 1

Note: If the respondent used a different word during the interview, it is also reported.

(What is an attack—that he loses his breath and becomes purple, he can't breathe?); and "Ella no tuvo ningún ataque de asma ... no le he llevado por un ataque" (She has never had an asthma attack ... I haven't taken her [to the emergency department]).

TABLE 4.—Description of a wheeze by MA families. (You are going to hear a sound. Could you tell me what you hear?).

General sounds	
Asthmatics (<i>N</i> = 16)	
“Silbido/pitido” (whistling),	<i>N</i> = 7
“Ruidito” (little sound),	<i>N</i> = 2
“Pillido” (peeping noise),	<i>N</i> = 1
“Wheeze,”	<i>N</i> = 1
“Chillido” (shrill cry/squeak),	<i>N</i> = 1
“Ronquido” (snoring/hoarseness/rattling),	<i>N</i> = 1
Non-asthmatics (<i>N</i> = 10)	
“Silbido/pitido” (whistling),	<i>N</i> = 3
“Soplido” (puff of air),	<i>N</i> = 1
“Ronquido” (snoring/hoarseness/rattling),	<i>N</i> = 1
“Chilla el pecho” (shrill cry/chest squeaks/squeals),	<i>N</i> = 1
Physical findings	
Asthmatics (<i>N</i> = 16)	
“No puede agarrar bien aire/falta aire/dificultad para respirar” (short of breath/difficulty breathing),	<i>N</i> = 7
“Agitado” (agitated/gasping for air),	<i>N</i> = 2
“Respira recio” (breathing hard),	<i>N</i> = 1
“Ahoga” (suffocate/choke),	<i>N</i> = 1
Non-asthmatics (<i>N</i> = 10)	
“No puede sollozar- que la respiración no la tiene tan frecuente como debe de ser” (can’t breathe/cry – breathing not as frequent as he/she should be),	<i>N</i> = 1
“Respira apretado” (breathing tight),	<i>N</i> = 1
“Ahoga” (suffocate/choke),	<i>N</i> = 1
“Falta de aire” (lack of air),	<i>N</i> = 1
“Agitado” (agitated/gasping for breath),	<i>N</i> = 1
Familiar sound/images	
Asthmatics (<i>N</i> = 16)	
“Niño llorando” (child crying),	<i>N</i> = 2
“Bebé enfermo” (like a sick baby),	<i>N</i> = 2
Non-asthmatics (<i>N</i> = 10)	
“Como un pez sin agua” (like a fish without water),	<i>N</i> = 1

Asthma and Exercise

Asthma during or after exercise was described as a physical experience of “agitación” (agitation) or “fatiga” (fatigue) by seven parents of children with asthma and five parents of non-asthmatic children. For example, “... después de hacer ejercicio empieza con agitación” (... after exercising he becomes agitated); “... después de agitarse le ha dado ese problema” (... after he becomes agitated he has this problem); and “que si veo después de hacer ejercicio empieza con agitación o fatigado...” (if I see after he exercises he starts getting agitated or fatigued ...). The descriptions of the word “agitarse” by parents included: “[He] gets tired and short of breath, he can’t catch his breath” (English-speaking parent); “Que corra y que se sienta desesperado ...” (that he runs and feels desperate ...); “Que como que se cansa ...” (Like he gets tired ...); and “Nada más agitado o cansado” (only agitated or tired).

DISCUSSION

As shown in prior research, asthma has been underdiagnosed in the MA Latino population (17, 20). The ISAAC is a standardized questionnaire used to determine the prevalence of wheezing, and its questions are dependent on

the respondent’s (i.e., the parent’s) understanding of the notion of “wheezing” to diagnose asthma. In our sample of Latino parents of Mexican background, there was a lack of understanding of the word “wheezing” and/or the word “attack.”

In this study, Latino parents of Mexican background who had children diagnosed with asthma by a medical professional had the same poor understanding of the word “sibilancia” (wheezing) as families of children without asthma. It would be expected that parents who have children with asthma or symptoms of asthma would have a better understanding of the words typically used in a clinical setting. This lack of understanding could be a result of diminished exposure to the US health-care system or could demonstrate poor communication between providers and parents with asthmatic children of Mexican background. While the ISAAC was validated in Spanish and used in Mexico, the most common word used to describe wheezing was “silbido”; however, it was not understood by all Latino parents of Mexican background in this qualitative study.

The lack of comprehension of this common questionnaire could also be due to limited literacy in this population. Inadequate health literacy may limit parents’ ability to understand the disease, access care, navigate the health-care system, and follow recommendations for treatment. In our review of the literature, there have been no previous studies looking at parental literacy and the diagnosis of asthma specifically in Latino children of Mexican descent. However, several studies on health literacy and asthma-related outcomes in underserved and Latino populations have shown an improvement in self-management skills when literacy has been addressed, including avoiding the loss of school days or the inappropriate use of emergency services or hospitalization (31–33). The creation of asthma educational materials using pictorial methods or videos, such as the one used in phase III of ISAAC (34), would be an important next step to address the unique cultural and linguistic issues and facilitate diagnosis in the Latino population of Mexican background. However, this video should be developed for parents of children with asthma as its current form is intended for adolescents.

The parents in this sample had low acculturation, as represented by the language most commonly used within and outside the home and the time parents had resided in the United States, which averaged less than 11 years. The process of learning and adapting to the culture and exposure to the medical system could improve parents’ understanding of screening questionnaires such as the ISAAC and their ability to navigate the medical system. Several studies have reported that Latino children whose caregivers preferred speaking Spanish were less likely to be diagnosed with asthma, even though they had symptoms consistent with asthma (35), and that parental language preference for Spanish in filling out a questionnaire was associated with underdiagnosis of asthma (17).

Parental health beliefs have been described in the literature as barriers to quality of care for ethnic minorities (36,

37). It has been shown in Latino patients that asthma may carry a cultural stigma and may be associated with hesitance to accept the diagnosis and ultimately contribute to underreporting of this disease (38). Social and cultural contexts of asthma in the Latino population of Mexican background may affect illness management, including preventive practices, identifying illness, and communication between the patient and the health-care provider. Parents of Latino patients may be reluctant to use the label of asthma, but instead endorse elements in the medical history, describe symptoms, acknowledge the use of asthma medication, and/or use other terms that may indicate asthma.

In this qualitative study, we found that the parents gave concrete visual and auditory descriptions indicative of asthma. It seems that parents may understand these descriptions of asthma better than clinical descriptions such as "wheezing." This suggests that parents' conceptual understanding of "wheezing," or asthma, might differ from the epidemiological definition that health-care providers frequently use. Identifying asthma in the Latino population of Mexican background might have more to do with auditory and visual description than the written word. Therefore, by using only a written questionnaire, patients with asthma may be under-identified. Further research should evaluate an approach using pictorial and auditory elements to enhance diagnosis.

Limitations

This qualitative study was intended solely to explore potential issues that need to be addressed to accurately identify asthma in one of the largest growing immigrant populations in the United States. Although the ISAAC has been validated in Spanish-speaking populations from Mexico, it was intended to screen for asthma and not to assess clinical control of asthma symptoms such as those the asthma control test (ACT) measures. We only utilized the ISAAC and not the ACT and this could have influenced our findings. This is a small sample, and, therefore, this study is not confirmatory or generalizable. Instead, it points toward next steps to confirm these exploratory hypotheses.

Conclusions

These qualitative findings suggest that common words and concepts such as "sibilancias" (wheezing) and "asthma attacks" were not understood by Spanish-speaking Latino parents of Mexican background. This raises questions about accurate identification of MA children with asthma. Further investigation of screening and teaching tools that incorporate visual and auditory descriptions of asthma symptoms would be a prudent next step.

DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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