

LEAVE NO ASTHMATIC CHILD BEHIND: THE CULTURAL COMPETENCY OF ASTHMA EDUCATIONAL MATERIALS

Objective: Cultural competency leads to higher quality care for asthmatic children, yet it is not known whether asthma educational materials targeting minority children and families are culturally competent. The study objective was to evaluate the cultural competency of printed asthma educational materials targeting minorities in Wisconsin.

Patients and Methods: The Wisconsin Asthma Coalition Disparities Workgroup held a series of meetings to develop, test, and apply a tool for evaluating the cultural competency of asthma educational materials targeting minorities in Wisconsin. The tool consists of seven domains: language, normative cultural values, folk illnesses, parent/patient beliefs, provider practices, visuals, and an overall assessment. Asthma educational materials were obtained from healthcare organizations and clinics. All seven domains were scored using a 5-point Likert scale.

Results: Only 17 asthma educational materials targeting minorities exist in Wisconsin: 16 for Latinos, one for Native Americans, none for African Americans, and none for Asians/Pacific Islanders. Overall assessment scores for each material ranged from 1–2 (poor-fair), with a mean \pm SD = 1.4 ± 0.5 . The highest mean domain scores were for language (3.5 ± 1.2) and illustrations (3.4 ± 1.4); the lowest score was for folk illnesses (1.1 ± 0.2), with weaknesses identified for parent/patient beliefs (1.8 ± 0.7); provider practices (1.8 ± 0.7); and normative cultural values (2.5 ± 0.7).

Conclusions: The few asthma educational materials targeting minorities that exist in Wisconsin are not culturally competent. More culturally competent asthma educational materials for minorities are needed. (*Ethn Dis.* 2007;17:742–748)

Key Words: Asthma, Cultural Competency, Racial/Ethnic Minorities

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INTRODUCTION

More than 90 million people, or 30% of the nation's population, are of non-White race/ethnicity.¹ Forty percent of US children are non-White², and it is estimated that by the year 2025, half of all US children will be non-White.³ Of the approximately 74 million children in the US, 56.1 million (76%) are non-Latino White, 14.5 million (20%) are Latino, 11.3 million (15%) are non-Latino African American, 3.1 million (4.1%) are Asian/Pacific Islander, and 855,894 (1.1%) are Native American.^{2–3} The state of Wisconsin, like the US, is experiencing dramatic growth in racial/ethnic minorities. From 1990 to 2000, the Latino and Asian/Pacific Islander populations in Wisconsin increased 107% and 68%, respectively; the African American population grew by 24%, and the American Indian and Alaska Native population grew by 16% (Table 1).⁴ Milwaukee, the state's largest city, became a minority-majority city in 2000, with more than half of the city's residents racial/ethnic minorities.⁵

Minority children are at high risk for asthma and its associated morbidity and hospitalizations. The asthma hospitalization rate in African American children is four times higher than that of non-Latino White children, and the asthma death rate in African American children is five times higher than that of

non-Latino White children.⁶ Puerto Rican children have the highest asthma prevalence of any racial/ethnic group of US children.^{7,8,9} The prevalence of childhood asthma in Wisconsin is similar to prevalence patterns in the United States, at 11% in African American children, 10% in Latino children, and 6% in non-Latino White children.^{4,10} The asthma hospitalization rate in Wisconsin for African American children is six times that of White children, and among Native American children < 5 years old, the hospitalization rate is almost double that of White children.^{4,10}

Many asthma hospitalizations might be avoided if parents were better educated about their child's condition, medications, the need for follow-up care, and the importance of avoiding known disease triggers.¹¹ Asthma educational materials, important for educating families about asthma and its management, should address the unique cultural and linguistic issues of racial/ethnic minority groups.^{12,13} The dramatic surge in the diversity of our nation has led to a greater recognition of the importance of providing culturally competent and linguistically appropriate health care.¹⁴ A growing literature documents the manifold impact of culture and language on clinical care, including healthcare processes and outcomes, quality of care, and patient satisfaction.^{15,16} Cultural competency leads to higher quality care for asthmatic children,¹⁷ but it is not known whether asthma educational materials currently targeting minority children are culturally competent. The objective of this study was to evaluate the cultural competency of printed asthma educational materials targeting minorities in one state.

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Table 1. US Census data on the race and ethnicity of the Wisconsin population, 1990 and 2000*

Race/Ethnicity	1990 Population	% of Total Population, 1990	2000 Population	% of Total Population, 2000	% Growth, 1990–2000
Total population	4,891,769	100%	5,363,675	100%	9.6%
White	4,464,677	91.3%	4,681,630	87.3%	4.9%
African American	241,697	4.9%	300,245	5.6%	24.2%
Asian/Pacific Islander	53,085	1.1%	89,341	1.7%	68%
American Indian and Alaska Native	37,769	0.772%	43,980	0.8%	16.4%
Some other race (not Hispanic or Latino)	2,148	0.04%	3,637	0.1%	NA
Two or more races (not Hispanic or Latino)	†		51,921	1.0%	NA
Hispanic/ Latino	93,194	1.9%	192,921	3.6%	107%

* Data source: US Census Bureau, 1990 Census and Census 2000, Summary Tape File 1.

† This category was not included in the 1990 Census.

METHODS

Tool Development

Between October 2004 and March 2005, the Wisconsin Asthma Coalition (WAC) Disparities Workgroup (a diverse group of representatives from non-profit organizations, hospitals/clinics, and local/state government) held a series of meetings approximately every six weeks to develop and test a tool for evaluating the cultural competency of asthma educational materials. During each meeting, drafts of the tool were reviewed and suggestions for improvement provided. Once the tool was completed, it was pilot-tested during the final meeting in the late spring 2005.

With feedback from other WAC Disparities Workgroup members, the tool was created and finalized based on

the five-component Flores model of cultural competency.¹⁴ The tool (Appendix) consists of the following seven domains: language, normative cultural values, folk illnesses, parent/patient beliefs, provider practices leading to racial/ethnic disparities in healthcare, visuals, and an overall assessment. These last two domains were added to the Flores model: 1) visuals, to assess whether the illustrations included in the educational materials were appropriate for the various cultural groups addressed; and 2) an overall assessment, to determine whether the authors explain the etiology and treatment rationale for asthma, in view of folk illness beliefs and other patient beliefs/practices. According to the Flores model of cultural competency, normative cultural values are beliefs, ideas, and behaviors that a particular cultural group values or expects in interpersonal interactions (eg, the Latino normative cultural value *respeto*). Folk illnesses are culturally constructed diagnostic categories commonly recognized by an ethnic group, sometimes conflicting with biomedical paradigms (eg, the Latino folk illness *mollera caida*).¹⁴ An evaluation of the literacy levels of asthma educational materials was not included as part of the tool, since usability and compliance with the National Asthma Education and Prevention Program were evaluated by the WAC Education Workgroup.

Collection of asthma educational materials

Printed asthma educational materials were obtained by the Asthma Project Manager at the Children's Health Alliance of Wisconsin and a clinical research assistant who contacted healthcare organizations, agencies, and clinics throughout Wisconsin. In addition, a letter requesting printed asthma educational materials targeting racial/ethnic minorities in Wisconsin was distributed during the WAC Meeting in Madison, WI, in May 2005 to 114 attendees from healthcare organizations, clinics, educational institutions, and local/state government throughout Wisconsin. The letter was also posted on the WAC website and sent to the WAC listserv of ~200 individuals for at least four sequential weeks. All WAC Disparities Workgroup members (approximately 35 individuals) received the letter by mail or email. Finally, phone calls requesting the materials were made to a roster of clinics and healthcare organizations serving racial/ethnic minority groups in the state of Wisconsin.

Evaluation of asthma educational materials

To ensure consistency, three reviewers from the appropriate cultural group independently evaluated each material during 17 separate review sessions facilitated by the WAC Asthma

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Table 2. Cultural competency scores for all asthma educational materials

Domain	Mean Score (\pm SD), Materials for Latinos	Scores, Material for Native Americans	Mean Score (\pm SD) For All Materials	Range
Language	3.5 (1.2)	NA	3.5 (1.2)	1–5
Visuals	3.5 (1.3)	1	3.4 (1.4)	1–5
Normative cultural values	2.6 (0.7)	1.5	2.5 (0.7)	1–4
Parent/patient beliefs	1.8 (0.7)	1.5	1.8 (0.7)	1–3
Provider practices	1.8 (0.2)	1	1.8 (0.7)	1–2.7
Folk illnesses	1.1 (0.2)	1	1.1 (0.2)	1–1.5
Overall assessment	1.4 (0.5)	1	1.4 (0.5)	1–2
Grand mean	2.2 (0.5)	1.2	2.2 (0.5)	1–5

Scores: 1=poor, 2=fair, 3=good, 4=very good, 5=excellent.

* NA= not applicable.

Project Manager and first author. The eight reviewers of the educational materials for Latinos included Latino members of the Wisconsin Asthma Coalition, several bilingual medical interpreters, and a Latina clinical research assistant. This team of eight reviewers was randomly assigned in groups of three to review all 16 educational materials targeting Latinos. The three reviewers of the one educational material targeting Native Americans were healthcare providers working in community health centers located in areas with large Native American populations. Following independent evaluations of each material, all three reviewers in the 17 sessions met to resolve any differences by consensus.

Analysis

Each question included in the tool was scored using a five-point Likert scale, with 1=poor, 2=fair, 3=good, 4=very good, and 5=excellent. In the 17 separate review sessions evaluating each material, mean consensus scores were generated for each of the seven domains of the tool. Next, a mean score (with standard deviation and range) for each domain was determined for all materials. Finally, a grand mean of the seven categories combined (with standard deviation and range) was computed. All statistical analyses were performed using Microsoft® Office Excel 2003 (with SP2).

RESULTS

Availability of asthma educational materials

Only 17 printed asthma educational materials targeting minorities were identified in the state of Wisconsin: 16 for Latinos, one for Native Americans, none for African Americans, and none for Asians/Pacific Islanders. The majority of materials targeting Latinos came from Dane and Milwaukee counties, where most Latinos in the state of Wisconsin reside; some of the materials originated from statewide networks. The educational material for Native Americans came from Jackson county, where many Native Americans of the Ho-Chunk or Winnebago tribe reside.

Cultural competency scores of asthma educational materials

The mean cultural competency scores for each of the 17 printed asthma educational materials are presented in Table 2. Materials designed for the Latino population were all translated into Spanish, with varying levels of proficiency, ranging from poor to excellent. Poor quality and erroneous translations were found in half of all asthma educational materials reviewed. Mean domain scores for language (3.5 ± 1.2) and visuals (3.5 ± 1.3) were between the “good” and “very good” ratings. Poor to fair quality was identified for parent/patient beliefs ($1.8 \pm$

0.7), provider practices (1.8 ± 0.2), and normative cultural values (2.6 ± 0.7). The lowest mean domain score was for folk illnesses (1.1 ± 0.2). For the only asthma educational material targeting Native Americans, all three reviewers agreed that this brochure failed to address cultural issues specific to Wisconsin Native Americans; scores ranged from 1–1.5 across all domains.

For all materials reviewed, the highest mean domain scores were for language (3.5 ± 1.2) and visuals (3.4 ± 1.4). Poor to fair quality was identified for parent/patient beliefs (1.8 ± 0.7), provider practices (1.8 ± 0.7), and normative cultural values (2.6 ± 0.7). The lowest mean domain score was for folk illnesses (1.1 ± 0.2). The grand mean of the seven categories combined was 2.2 ± 0.5 , with a range of 1–5.

Illustrative examples

Almost all educational materials targeting Latinos were simply translated into Spanish, but otherwise were identical to brochures addressing White families with asthmatic children. Poor quality and erroneous translations were noted for eight of the 16 materials targeting Latinos (Table 3).

The Native American asthma educational brochure included a photo of an Indian at a tribal dance but otherwise was identical to brochures addressing White families with asthmatic children.

Table 3. Illustrative examples of asthma educational materials

Asthma Educational Material	Areas of Deficiency	Strengths
Educational material #1 for Latinos	Grammatical errors and mistranslations: -“peak flow meter” not rendered into Spanish -incorrect use of infinitive “revisar” instead of imperative “revise”	Checklist of asthma patient rights and responsibilities: -patient rights, doctor’s responsibilities -checklist for visits to the doctor (what to bring, symptoms to report to doctor, questions to ask about medications and asthma action plan) Worksheet for parents with boxes to check and open-ended questions on asthma and its treatment (parent can discuss with doctor)
Educational material #2 for Latinos	Text left in English: -words and descriptors under all illustrations	
Educational material #3 for Latinos		
Educational material #4 for Latinos		
Educational material #5 for Latinos	Mistranslation: -“disparador” used for “asthma trigger” Deficiencies in areas of folk illness and parent/patient beliefs: -no information about culturally specific triggers (candles, incense)	
Educational material for Native Americans	Deficiencies in areas of folk illnesses and patient/parent beliefs: -did not address cultural issues specific to Wisconsin Native Americans, such as frequent distrust of maintenance asthma medications and smudging, a cleansing ritual in which sage, sweat grass, or tobacco are burned, creating potential asthma triggers -simply added photos	

Importantly, it did not address cultural issues specific to Wisconsin Native Americans, such as frequent distrust of maintenance asthma medications and smudging, a cleansing ritual in which sage, sweat grass, or tobacco are burned, creating potential asthma triggers (Table 3).¹⁸

Literacy level

The WAC Education Workgroup determined the reading level of the asthma educational materials under review using the SMOG Readability Formula.^{19,20} Only 5 of the 32 materials reviewed by the workgroup fell within the recommended reading levels for health-related materials (a fifth- to sixth-grade reading level); nine of these 32 educational materials were above the estimated mean US reading level of the eighth grade.^{19,21}

DISCUSSION

Few asthma educational materials targeting racial/ethnic minorities exist in the state of Wisconsin. Most materials target Latinos, only one targets Native Americans, none target African Americans, and none target Asians/Pacific Islanders. In the face of the high prevalence rates and marked asthma morbidity among Native American and African American children in Wisconsin,^{4,10} the lack of materials targeting these populations is concerning.

Asthma educational materials targeting racial/ethnic minorities were not culturally competent. Poor to fair quality was identified for four of the five domains: normative cultural values, folk illnesses, parent/patient beliefs, and provider practices. For the fifth compo-

nent, language, poor quality and erroneous translations were found in half of the asthma educational materials reviewed.

Although 16 of the materials reviewed were translated into Spanish, they did not address Latino normative cultural values, folk illnesses, and parent/patient beliefs. Failure to consider patients’ culture can have serious consequences and can impede preventive efforts, delay appropriate medical care, and support the use of neutral or harmful remedies among this high-risk population.¹⁴ Puerto Rican children have the highest prevalence of lifetime asthma (26%) and recent asthma attacks (12%), compared with non-Latino African American children, non-Latino White children, and Mexican American children.⁹ Despite substantial asthma prevalence and morbidity, children with

asthma from Spanish-speaking families have been shown to be at high risk of inadequate maintenance asthma therapy.^{22,23} In fact, Latino children are less likely than White or African American children to be using anti-inflammatory medications,²⁴ and they receive fewer inhaled steroids than White children after adjusting for relevant confounders.²⁵

Several studies underscore the importance of ethnomedical beliefs for Latino parents of asthmatic children. In a qualitative research study of a Dominican American community in New York City, most mothers (72%) said that they did not use prescribed medications for asthma prevention, but instead substituted folk remedies derived from their ethnomedical beliefs about health and illness.²⁶ Ethnomedical therapies for asthma, including attempts to maintain physical and emotional balance and harmony, religious practices, and ethnobotanical remedies, are commonly used in the Puerto Rican community.²⁷ Addressing these ethnomedical therapies with families can lower the risk for potentially toxic effects of some treatments while improving adherence to appropriate biomedical therapies.^{14,27} Latino parents should also be encouraged to advocate for their children to ensure that they receive inhaled steroids as needed and receive the same quality of care as White asthmatic children.^{14,15,16} Simply translating asthma educational materials into Spanish is not sufficient and does not constitute cultural competency.

Research has also provided evidence that, among pediatric Navajo asthma patients, asthma perceptions and beliefs about asthma medications influence when and how often asthma medicines are taken, and use of health services.¹⁸ Ethnographic interviews of 22 Navajo families with 29 asthmatic children revealed that Navajo families are hesitant to use long-term controller medications, particularly in the absence of symptoms, because they consider asthma to be a series of acute episodes rather

than a chronic disease. Navajo parents are also concerned that their child might become dependent on medications, and often try to "wean" their child from controller medications over time. It is essential for asthma educational materials targeting Native Americans to address this distrust of maintenance asthma medications along with cultural practices such as smudging, which can substantially worsen children's asthma by exposing them to multiple asthma triggers.

The Native American brochure reviewed included a photo of a Native American at a tribal dance, but was otherwise identical to brochures addressing White asthmatic children; it failed to address cultural issues vital to the care of Native American children with asthma. In fact, apart from language, the highest mean domain scores for all the materials reviewed were for visuals, suggesting that illustrations may have been viewed as an important way to tailor educational materials to a given racial/ethnic group. Visuals are important; however, simply adding photos of different racial/ethnic groups to asthma educational materials does not constitute cultural competency.

Certain study limitations should be noted. The tool used to evaluate the cultural competency of asthma educational materials was not formally validated; future work will focus on validating the tool, providing evidence of reliability and construct validity of content domains. Only asthma educational materials from the state of Wisconsin were reviewed; thus, the study findings do not address the cultural competency of asthma educational materials in other states. However, the tool and evaluation process described in this manuscript might serve as a model for other states in evaluating the cultural competency of asthma educational materials. Also, the reviews were done by various healthcare professionals and medical interpreters with experience in the care of children with asthma; they did not incorporate feed-

These study findings indicate that few asthma educational materials targeting racial/ethnic minorities exist in the state of Wisconsin, and those available are not culturally competent.

back from families of asthmatic children. Although we made every attempt to obtain all written materials throughout the state, non-response may have led to some materials not being analyzed in this study.

This is the first study that we are aware of to evaluate the cultural competency of asthma educational materials. Future work might examine the ways in which parents of asthmatic children from racial/ethnic minority groups believe that educational materials might be improved. More research also is needed examining ethnomedical beliefs about asthma and its treatment; such research is critical to the process of creating culturally competent asthma educational materials targeting racial/ethnic minorities.

CONCLUSIONS

These study findings indicate that few asthma educational materials targeting racial/ethnic minorities exist in the state of Wisconsin, and those available are not culturally competent. Most materials target Latinos, only one targets Native Americans, none target African Americans, and none target Asians/Pacific Islanders. More culturally competent asthma educational materials are needed. It is not sufficient to simply translate asthma educational materials into other languages or add photos of different racial/ethnic groups to materials to make them culturally competent.

Furthermore, to ensure high-quality translation, certified translators with adequate levels of training should be used to translate asthma educational materials. Providing culturally competent asthma educational materials is a key component of reducing racial/ethnic disparities in pediatric asthma and ensuring quality asthma care for all children.

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APPENDIX

Questions used to evaluate the cultural competency of asthma educational materials

Reviewers scored each question using a 5-point Likert scale, where 1=poor and 5=excellent

Language

- 1) Is the material translated well, so that it can be easily and readily understood?
- 2) Are words and phrases of the appropriate dialect used (Mexican American vs Puerto Rican Spanish or Cantonese vs Mandarin, for example)?

Normative Cultural Values

- 1) Does the educational material adequately consider the normative cul-

tural values of this particular cultural group?

Folk Illnesses

- 1) Does the educational material adequately consider any folk illness beliefs which affect the particular cultural group's understanding of asthma (eg, How do families think of asthma as a disease, why it happens, its triggers, its symptoms)?
- 2) Does the educational material adequately consider whether members of this cultural group go to folk healers for asthma care?
- 3) Does the educational material adequately consider any folk treatments or home remedies that members of this cultural group use to treat asthma (eg, abdominal massage with warm oils for *empacho*, a Latino folk illness)?

- 4) Does the educational material adequately consider any potentially harmful folk treatments/home remedies, offering culturally acceptable alternatives (eg, chamomile tea instead of powders containing lead oxide used for *empacho*)?

Parent/Patient Beliefs

- 1) Does the educational material adequately consider the important parent/patient beliefs regarding asthma?
- 2) Does the educational material adequately consider how members of this cultural group view biomedical therapy, especially maintenance asthma therapy or controller medications vs bronchodilators?

Provider Practices

- 1) We know that racial/ethnic minorities are less likely to be prescribed bronchodilators/maintenance asthma therapy and less likely to be referred to specialists. Does the material state these disparities in provider practices?

- 2) Does the material encourage parents to request that these medication and referral issues be addressed by the provider?
- 3) Do the authors provide any other suggestions to empower parents to raise these issues?

Visuals

- 1) Are the visual representations (pictures, graphs, drawings) appropriate for the cultural group being addressed?

Overall Assessment

- 2) Do the authors explain the etiology and treatment rationale for asthma, in view of the above-identified folk illness beliefs and other patient beliefs/practices?