ABSTRACT. Objectives. To determine, in a population of predominantly Latino children with asthma 6 to 18 years old, whether parent and child reports of asthma symptoms with exercise differ and to evaluate the validity of child and parent reports of symptoms.

Design. Data obtained from child and parent interviews; pulmonary function tests (forced vital capacity, forced expiratory volume in 1 second, forced expiratory flow<sub>25-75</sub> peak expiratory flow), and observation of symptoms after exercise.

Setting. Three summer camps for minority children with asthma in Los Angeles County.

Participants. A total of 97 children with asthma (78% Latino, 12% non-Latino White, 9% Other; 6 to 18 years of age) and their parents.

Intervention(s). None.

Primary Outcome Measures. Child and parent reports of cough and wheezing with exercise and pulmonary function tests before and after exercise. While at camp, children underwent spirometry after completing the self-administered survey. The pulmonary function tests were conducted and interpreted according to the pediatric specifications for spirometry, and results >80% of predicted, adjusted for gender, age, height, and race, were considered normal. Six peak expiratory flow rates (PEFR) by peak flow meter also were recorded by trained research assistants immediately before spirometry, and values >80% of predicted based on height were considered normal. To observe child symptoms with exercise, children participated in a relay running race of 200 feet followed by a swimming race of 300 feet. Research assistants measured heart rate and 6 PEFRs using ASSESS portable peak flow meters immediately before and after each exercise. A positive exercise challenge was defined as a 15% reduction in mean PEFR and/or observed asthma symptoms (cough, wheezing, chest pain, asthma attack).

Results. Of the children, 18% reported never having a cough when they exercised, 46% reported having it occasionally when they exercised, and 36% reported having it quite often or always when they exercised. For wheezing, 20% of children reported never having wheezing when they exercised, 35% having it occasionally when they exercised, and 45% having it quite often or always when they exercised. Parents reported fewer symptoms than did their children. Of the parents, 34% reported that their children did not have cough with exercise, 37% reported few to some days, and 29% reported most days or every day. Forty-seven percent of parents reported that their child did not wheeze with exercise in the last 2 months, and 35% reported wheezing on a few days to some days, and 17% reported wheezing most days to every day.

Parent and child reports of cough or wheezing after exercise correlated mildly with each other (parent/child cough \( r = 0.23; \kappa = 0.03 \) parent/child wheezing \( r = 0.21; \kappa = 0.14 \)). Children were more likely to report cough: 59 of 71 (83%) of children versus 44 of 71 (62%) of parents. The 22 children who reported cough when their parents did not account for most of the disagreement between parents and children. Children were more likely than were their parents to report wheezing: 55 of 69 (80%) children versus 36 of 69 (52%) parents reported that the child wheezed. The 24 children who reported wheezing when their parents did not account for most of the disagreement between parents and children.

Forty-seven percent of the children had a value <80% of predicted for at least one of the four spirometry tests; 29% of mean baseline PEFRs were <80% of predicted. Overall, 86% of the children met one or more of the following: any percent of predicted pulmonary function tests <80% or any symptom or PEFR reduction of 15% after exercise, or other occurrence of nonexercise symptoms during camp.

Almost all child reports of cough and wheezing correlated significantly with the criterion validity criteria. For example, child reports of wheezing were, as expected, correlated negatively with the percent of predicted FEV<sub>1</sub> \( r = -0.28 \) and correlated positively with observed symptoms after exercise \( r = 0.3 \). On the other hand, neither parent reports of cough nor those of wheezing correlated significantly with any of the pulmonary function tests or symptomatic validity criteria.

Parent reports of wheezing were correlated positively with construct validity variables such as 1) parent reports of child’s bother \( r = 0.35 \) and activity limitation \( r = 0.23 \) because of asthma; 2) more use of rescue or bronchodilator medications \( r = 0.18 \); 3) more parent worry about asthma overall \( r = 0.29 \); and 4) parent perception of asthma severity being moderate to very severe instead of mild or very mild \( r = 0.28 \). Child reports of cough and wheezing were not correlated significantly with...
almost all of the parent-reported factors hypothesized to be associated with asthma morbidity.

Conclusions. Clinicians and researchers evaluating asthma morbidity in children should elicit child reports of symptoms. More research is necessary to understand discordance between child and parent reports of symptoms and its relationship to asthma morbidity experienced by the child. Pediatrics 1998;102(6). URL: http://www.pediatrics.org/cgi/content/full/102/6/e68; childhood asthma, Latino/Hispanic, exercise symptoms, parent perception, child perception.

HEALTH CARE PROVIDERS TREATING CHILDREN WITH ASTHMA SHOULD BE AWARE OF DIFFERENCES BETWEEN CHILD AND PARENT REPORTS OF SYMPTOMS. Previous research on asthma and other conditions demonstrates that parent and child reports differ and suggests that children may be more valid reporters than their caregivers. However, for the most part, clinicians and researchers rely on the parent report and/or pulmonary function tests to evaluate the impact of asthma experienced by the child. Discordance in symptom reports may reflect differences between the parent and child in awareness of the child’s asthma symptoms and/or psychosocial experience with the illness. Because it is usually the parent who initiates care, these differences in perspective may be associated with differences in use of health services and compliance. Given the rise in asthma morbidity among poor and minority children, and Latino children in particular, it is important to explore differences in parent and child reports of symptoms among Latino children.

In a population of predominantly Latino children with asthma, 6 to 18 years of age, we 1) describe parent and child reports of asthma symptoms with exercise differ from each other, and 2) evaluate the validity of child and parent reports of symptoms.

METHODS

Subject Recruitment

During the summer of 1994, we recruited children attending three camps in Los Angeles for poor and minority children with asthma. This method has been used previously. Children were included only if parents indicated that their child had a physician diagnosis of asthma.

Parent and Child Interview Data

A single half-hour parent interview was carried out by telephone by trained bilingual interviewers 1 week or less before children attended camp and after they had been selected for attendance. Parents were asked about 1) child asthma symptoms (frequency of cough and wheezing with exercise in the last 2 months); 2) child functional status and quality of life limitations attributable to asthma (frequency of bother in the last 2 months, limitation of normal activities in the last 2 months, school days lost in the last year); 3) child health care use for asthma (type of medications used in the last 2 months, doctor and emergency department visits for asthma in the last year, hospitalizations for asthma in the last year, whether regular provider is an asthma specialist); 4) parental worry related to asthma (overall, about child activity limitation, medications, and side effects); 5) parental perception of the child’s asthma severity; and 6) sociodemographic.

Pulmonary Testing and Clinical Data

While at camp, children underwent spirometry after completing the self-administered survey. The pulmonary function tests (forced expiratory volume in 1 second [FEV1], forced vital capacity [FVC], forced expiratory flow between 25% and 75% vital capacity [FEF25–75], and peak expiratory flow [PEF]) were conducted and interpreted according to the pediatric specifications for spirometry, and results >80% of predicted adjusted for gender, age, height, and race were considered normal. Six peak expiratory flow rates (PEFR) by peak flow meter also were recorded by trained research assistants immediately before spirometry, and values >80% of predicted based on height were considered normal.

To observe child symptoms with exercise, children participated in a relay running race of 200 feet followed by a swimming race of 300 feet. The running and swimming lasted ~1 to 2 minutes each. Research assistants measured heart rate and six PEFRs using ASSESS portable peak flow meters immediately before and after each exercise. A positive exercise challenge was defined as a 15% reduction in mean PEFR and/or observed asthma symptoms (cough, wheezing, chest pain, asthma attack).

Children also were monitored twice a day on the day of the day after pulmonary testing for the presence of a standardized list of asthma symptoms. Trained research assistants supervised by asthma clinicians (ML or CI) asked children questions regarding their symptoms that day. All investigators and research assistants were blinded to the parent and child survey responses when they conducted and interpreted the pulmonary function tests and observed the children. The research protocol for the parent and child interviews and the physiologic testing were approved by the UCLA Committee for the Protection of Human Subjects.

Analysis

To evaluate the criterion validity of both parent and child report, we calculated Pearson’s correlation coefficients between the reports of cough and wheezing and 1) percent of predicted values of FEV1, 2) percent of predicted values of FVC, 3) percent of predicted values of FEF25–75, and 4) percent of predicted values of PEFR. Presence of daily asthma symptoms was defined as a positive child report of symptoms to the research assistant or presence of signs or symptoms recorded by the camp asthma clinician that day. In addition, we compared parent and child reports of symptoms to one composite “clinically symptomatic” criterion that was met when any of the percent of predicted spirometry tests (FEV1, FVC, PEFR) was <80% predicted, mean PEFR was <80% predicted, or when criterion three or four was met.

Pulmonary Testing and Clinical Data

While at camp, children underwent spirometry after completing the self-administered survey. The pulmonary function tests (forced expiratory volume in 1 second [FEV1], forced vital capacity [FVC], forced expiratory flow between 25% and 75% vital capacity [FEF25–75], and peak expiratory flow [PEF]) were conducted and interpreted according to the pediatric specifications for spirometry, and results >80% of predicted adjusted for gender, age, height, and race were considered normal. Six peak expiratory flow rates (PEFR) by peak flow meter also were recorded by trained research assistants immediately before spirometry, and values >80% of predicted based on height were considered normal.

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To evaluate construct validity, we correlated parent and child reports of symptoms to other measures of asthma morbidity. We hypothesized that parent and child report of symptoms would be related to health care use (medications for asthma, outpatient and emergency department visits, hospitalizations, having an asthma specialist), and functional impairment attributable to asthma (bother, activity limitation, school days lost). In addition, we hypothesized that parent reports of symptoms would correlate with parent worry and perception of the child’s asthma severity.

To evaluate agreement between parent and child reports of asthma symptoms, we: 1) calculated Pearson’s correlation coefficients between the parent response (scaled 1 to 5) and child responses (scaled 1 to 4) for the cough and wheezing questions with exercise, and 2) calculated κ statistics for cross-tabulations of dichotomized parent and child reports of cough and wheezing. We assumed a value of 0 for a response of “never” for parent and child reports and a value of 1 for a parent’s response of “a few days, some days, most days, and every day” and for a child’s response of “not very often, quite often, and always.” We classified the level of agreement as follows: κ ≤ 0 (no agreement); 0 < κ
RESULTS

Characteristics of Population

We recruited 100% of all 97 children with a parent-reported diagnosis of asthma. Ninety-five (98%) of the parents completed the telephone survey, and 82 (85%) of children completed the camp survey and 84 (87%) participated in the pulmonary testing and exercise challenge. The majority of children in our sample were boys (60%), reported by their parents as Latino (78%), and born in the United States (94%). The mean age was 10.1 years (SD, 2.2; range, 6 to 18), with 65% being younger than 11 years of age (Table 1). During the previous 2 months, approximately two thirds of children were bothered by asthma, and slightly greater than half were limited by asthma in their normal activities. Approximately half of the parents perceived their child’s asthma to be at least moderate. Almost all children used inhaled bronchodilators for asthma symptoms. During the last year, three quarters of the children had seen a doctor for asthma, and 7% had been hospitalized. Forty-one percent had a regular provider who was a children’s asthma specialist (Table 2).

Disagreement Between Parent and Child Reports of Asthma Symptoms

Eighteen percent of children reported never having a cough when they exercised, 46% having it occasionally when they exercised, and 36% having it quite often or always when they exercised. Twenty percent of children reported never having wheezing when they exercised, 35% having it occasionally when they exercised, and 45% having it quite often or always when they exercised. Parents reported fewer symptoms than did their children; 34% of par-

<table>
<thead>
<tr>
<th>TABLE 1. Sociodemographic Characteristics of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child characteristics</td>
</tr>
<tr>
<td>Age (n = 97) mean</td>
</tr>
<tr>
<td>Male (n = 97) %</td>
</tr>
<tr>
<td>Child’s ethnicity* (n = 97) %</td>
</tr>
<tr>
<td>Latino</td>
</tr>
<tr>
<td>Non-Latino white</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Child’s country of birth (n = 93) %</td>
</tr>
<tr>
<td>United States</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Language preferred for interview (n = 82) %</td>
</tr>
<tr>
<td>English</td>
</tr>
<tr>
<td>Spanish</td>
</tr>
<tr>
<td>Parent characteristics</td>
</tr>
<tr>
<td>Mother as respondent (n = 95) %</td>
</tr>
<tr>
<td>Parent’s self-reported ethnicity* (n = 91) %</td>
</tr>
<tr>
<td>Latino</td>
</tr>
<tr>
<td>Non-Latino white</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Parent’s country of birth (n = 93) %</td>
</tr>
<tr>
<td>United States</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Parent’s years of schooling (n = 90) mean</td>
</tr>
<tr>
<td>Language preferred for interview (n = 95) %</td>
</tr>
<tr>
<td>English</td>
</tr>
<tr>
<td>Spanish</td>
</tr>
</tbody>
</table>

* Percentages do not add up to 100 because of rounding.

Asthma Symptoms With Exercise

<table>
<thead>
<tr>
<th>TABLE 2. Child Asthma Morbidity and Health Care Use as Reported by Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma bothered child in last 2 months (n = 94)</td>
</tr>
<tr>
<td>Never</td>
</tr>
<tr>
<td>Once in a while</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>All of the time</td>
</tr>
<tr>
<td>Asthma limited normal child activities in last 2 months* (n = 93)</td>
</tr>
<tr>
<td>None of the time</td>
</tr>
<tr>
<td>A little of the time</td>
</tr>
<tr>
<td>Some of the time</td>
</tr>
<tr>
<td>Most of the time</td>
</tr>
<tr>
<td>All of the time</td>
</tr>
<tr>
<td>School days last year lost because of asthma (n = 86)</td>
</tr>
<tr>
<td>≤10 days (2 weeks of school)</td>
</tr>
<tr>
<td>&gt;10 days</td>
</tr>
<tr>
<td>Parent perception of child’s asthma severity (n = 91)</td>
</tr>
<tr>
<td>Very mild</td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Severe</td>
</tr>
<tr>
<td>Very severe</td>
</tr>
<tr>
<td>Asthma medication use</td>
</tr>
<tr>
<td>Uses bronchodilators (n = 90)</td>
</tr>
<tr>
<td>Takes antiinflammatory drugs (n = 90)</td>
</tr>
<tr>
<td>Both (n = 91)</td>
</tr>
<tr>
<td>Asthma health care visits</td>
</tr>
<tr>
<td>Visited physician in last 2 months (n = 93)</td>
</tr>
<tr>
<td>&gt;1 physician visit last year (n = 88)</td>
</tr>
<tr>
<td>Visited emergency room last year (n = 92)</td>
</tr>
<tr>
<td>Hospitalized last year (n = 87)</td>
</tr>
<tr>
<td>Type of regular asthma provider (n = 94)</td>
</tr>
<tr>
<td>Asthma specialists</td>
</tr>
<tr>
<td>Non-asthma specialist</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 3. Agreement Between Parent and Child Reports of Asthma Symptoms With Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough*</td>
</tr>
<tr>
<td>Child Report</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

* Percentages do not add up to 100 because of rounding.

ents reported that their children did not have cough with exercise, 37% reported few to some days, and 29% reported most days or everyday. Forty-seven percent of parents reported that their child did not wheeze with exercise in the last 2 months, 35% reported a few days to some days, and 17% reported several days to every day.

Parent and child reports of cough or wheezing after exercise correlated mildly with each other (parent/child cough, r = 0.23, P = .05, k = 0.03; parent/child wheezing, r = 0.21, P = .08, k = 0.14). Cross-tabulations and k analyses confirmed these findings (Table 3). Children were more likely to report cough: 59 of 71 (83%) children versus 44 of 71 (62%) parents. Most of the disagreement between parents and children is accounted for by the 22 children who reported a few days to some days, and 17% reported most days to every day.

Parent report

<table>
<thead>
<tr>
<th>Parent report</th>
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<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
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</tbody>
</table>

k = 0.03; P = .08.
wheezing: 55 of 69 (80%) children versus 36 of 69 (52%) parents reported that the child wheezed. Most of the disagreement between parents and children is accounted for by 24 children who reported wheezing when their parents did not.

Pulmonary Testing and Clinical Observation

Forty-seven percent of the children had a value <80% of predicted for at least one of the four spirometry tests; 29% of the children had a PEFR <80% of predicted. The correlation coefficients among the pulmonary function tests ranged from \( r = 0.5 \) to \( r = 0.8 \).

The standardized exercise challenge was effective in raising the child’s heart rate (34% postrunning and 19% postswimming). Cough was the most common observed symptom after exercise and 9% of the children experienced a ≥15% reduction of PEFR. Overall, 86% percent of the children met one or more of the following: any percent of predicted pulmonary function tests <80% while at rest, presence of any symptom or PEFR reduction of 15% after exercise, or other occurrence of nonexercise symptoms during camp (Table 4).

Criterion and Construct Validity

Almost all child reports of cough and wheezing correlated significantly with the criterion validity criteria. For example, child reports of wheezing were, as expected, correlated negatively with the percent of predicted FEV1 (\( r = -0.28; P = .03 \)) and correlated positively with observed symptoms after exercise (\( r = 0.3; P = .02 \)). However, neither parent reports of cough nor those of wheezing correlated significantly with any of the pulmonary function tests or symptomatic validity criteria (Table 5).

Parent reports of wheezing were correlated positively with construct validity variables such as 1) parent reports of child’s bother (\( r = 0.35; P = .0008 \)) and activity limitation (\( r = 0.23; P = .03 \)) attributable to asthma; 2) more use of rescue or bronchodilator medications (\( r = 0.18; P = .09 \)); 3) more parent worry about asthma overall (\( r = 0.29; P = .005 \)); and 4) parent perception of asthma severity being moderate to very severe, instead of mild or very mild (\( r = 0.28; P = .008 \)). Child reports of cough and wheezing were not correlated significantly with almost all of the parent-reported factors hypothesized to be associated with asthma morbidity.

**DISCUSSION**

In a predominantly Latino sample of children with asthma, we found that parents and children do not report the same symptoms and that children’s reports appear to be more valid than their parent’s reports. To our knowledge, this is the first study that has evaluated the validity of parent and child reports of symptoms in a Latino population. Our study provides evidence of the criterion validity of child reports and the need to question children directly about their symptoms instead of only depending on the parent as a proxy.

Our findings are consistent with previous studies indicating that children can be more valid reporters than their parents. In a sample of 52 Canadian children 7 to 17 years old with asthma Guyatt found that for children older than age 11, the child’s global rating of symptoms was correlated more significantly with pulmonary function test results and report of symptoms and medication use than were the parents’ global ratings of the child’s symptoms. With the measures discussed above, we have replicated these findings in a predominantly Latino sample.

Our findings also are consistent with other studies demonstrating a relationship between parent reports of symptoms and nonphysiologic measures of asthma morbidity. In a sample of 105 children, 6 to 18 years of age, with asthma, Fritz demonstrated that parent factor scores of symptom ratings—but not children’s ratings—were related to parent reported measures of functional morbidity and health care use. Other investigators also have found that parent reports of health status in children with asthma are related to health care use.

There are a number of limitations to our study. We were not able to compare time-related changes in symptom report to changes in physiologic function. We did not interview children in settings identical to their daily environments nor simultaneously with parents. It is possible that children learned to be more correctly aware of their symptoms than did their parents because of their educational experiences in camp. If parents had received similar “educational experiences,” agreement between child and parent might have been better. Because of feasibility constraints, we did not administer parent and child survey items with exactly the same recall time nor conduct time-consuming, more specialized physiologic testing such as a longer exercise challenge or a bronchodilator reversibility test.

More research is necessary both to understand the causes of disagreement between parent and child reports of asthma symptoms and to assess the valid-

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**TABLE 4.** Pulmonary Function Tests and Clinical Observation

<table>
<thead>
<tr>
<th>Test</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Spirometry* ≤80% predicted ( (n = 70) )</td>
<td>11</td>
</tr>
<tr>
<td>FVC</td>
<td>21</td>
</tr>
<tr>
<td>FEV1</td>
<td>37</td>
</tr>
<tr>
<td>FEF25–75</td>
<td>21</td>
</tr>
<tr>
<td>PEF</td>
<td>47</td>
</tr>
<tr>
<td>Any pulmonary function test ≤80% predicted</td>
<td>29</td>
</tr>
<tr>
<td>2) Mean PEFR† measures immediately before spirometry ( (n = 80) ) ≤80% predicted</td>
<td>29</td>
</tr>
<tr>
<td>3) Children with asthma symptoms after exercise challenge</td>
<td>18</td>
</tr>
<tr>
<td>Cough after running ( (n = 78) )</td>
<td>5</td>
</tr>
<tr>
<td>Wheezing after running ( (n = 78) )</td>
<td>10</td>
</tr>
<tr>
<td>Cough after swimming ( (n = 73) )</td>
<td>4</td>
</tr>
<tr>
<td>Wheezing after swimming ( (n = 73) )</td>
<td>9</td>
</tr>
<tr>
<td>Any symptom after running or swimming ( (n = 75) )</td>
<td>33</td>
</tr>
<tr>
<td>4) Children with ≥15% reduction in PEFR after running or swimming ( (n = 54) )</td>
<td>51</td>
</tr>
<tr>
<td>5) Children with other asthma symptoms during camp ( (n = 80) )</td>
<td>86</td>
</tr>
<tr>
<td>6) “Clinically symptomatic” by criteria 1–5 ( (n = 69) )</td>
<td>86</td>
</tr>
</tbody>
</table>

* Spirometry (FEV1, FVC, FEF25–75, and PEF) results adjusted for predicted value for age, gender, height, ethnicity.
† ASSESS portable peak flow results for PEFR.

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4 of 8 DIFFERENCES BETWEEN LATINO CHILD AND PARENT REPORTS OF ASTHMA SYMPTOMS Downloaded from by guest on June 1, 2017
ity of parent and child reports. Preliminary studies indicate that a child’s capacity to detect asthma symptoms may vary and may be related to cognitive or emotional domains. Fritz19 found that children with higher IQs were better predictors of their PEFRs. Given the reported prevalence of emotional and mental health disorders in children with asthma,32,33 future research could test the hypothesis that children’s report of symptoms is associated with their psychosocial state.

We believe that more work needs to be performed in symptom perception to understand how differences in parent and child reports of symptoms influence patient compliance and behavior. Prospective clinical trials and intervention studies that measure morbidity through parent and child report and physiologic testing are necessary. Qualitative studies that ask parents and children to discuss or resolve their reported differences also can shed light on how to interpret parent and child disagreement. In the meantime, to monitor and improve asthma control, clinicians should elicit cough and wheezing reports directly from children. We need to listen more to clinicians should elicit cough and wheezing reports. We need to listen more to clinicians should elicit cough and wheezing reports.

### ACKNOWLEDGMENTS

We thank Karen Spritzer, MS, for her diligent performance of the analyses; Amanda Kerbs, Adolfo Aguilera, Ramón Díaz, Hilda Fernández, René Rizo, and the staff of the UCLA Community-based Education Program for Latino Children with Asthma for their help collecting the data; Marlene Nishimoto, Linda Escalante, Ana Rios, Peter Scott, and Carrie Imai for their administrative assistance; Fisons Pharmaceuticals, Rochester, NY, and Healthscan Products, Inc, Cedar Grove, NJ, for donating the peak flow meters used; and Multispiro, Inc, Irvine, CA, for lending us the portable spirometers.

This work is dedicated to the children with asthma and their parents who participated in this study and, in particular, to the memory of one of these children, who has since died of asthma.

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3. Khampalikit S. The interrelationships between the asthma child’s dependency behavior, his perception of his illness, and his mother’s perception of his illness. Mater Child Nurs J. 1983;12:221–296


APPENDIX 1. Bilingual Parent Survey Measures Used

For the parent questionnaire, we drew from already translated survey items included in the National Health Interview Survey and the UCLA Community-based Education Program for Latino Children with Asthma. For parent questions, we kept the 2-month and 12-month recall time frames used in the source questionnaires. Before administration, the items were pilot-tested with small focus groups of predominantly Mexican-American parents to evaluate comprehension and cultural and Spanish language appropriateness.

Asthma Morbidity

Exercise-induced Symptoms

How often has (child’s name) been troubled by the following symptoms when hurrying, or running, or playing sports in the last 2 months?

a. cough
   never 1
   a few days 2
   some days 3
   most days 4
   every day 5

b. wheezing
   never 1
   a few days 2
   some days 3
   most days 4
   every day 5

¿Cuántas veces le han molestado los siguientes síntomas a (nombre del niño/a) cuando se apura, corre o juega deportes en los últimos 2 meses?

a. tos
   nunca 1
   pocas veces 2
   algunas veces 3
   la mayor parte de los días 4
   todos los días 5

b. silbido
   nunca 1
   pocas veces 2
   algunas veces 3
   la mayor parte de los días 4
   todos los días 5

Functional Status and Quality of Life

In the last 2 months, how often has his/her asthma caused pain, discomfort or upset?

Never 1
   Once in a while 2
   Often 3
   All of the time 4

¿Durante los últimos 2 meses, cuántas veces su asma le causó sufrimiento, incomodidad o molestia?

Nunca 1
   De vez en cuando 2
   Muchas veces 3
   Toda la parte del tiempo 4

During the past 2 months, how often did asthma limit or prevent (child’s name) from doing usual childhood activities, such as playing with other children or participating in games or sports?

None of the time 1
   A little of the time 2
   Some of the time 3
   Most of the time 4
   All of the time 5

¿Durante los últimos 2 meses, cuántas veces su asma le impidió a (nombre del niño/a) de hacer actividades habituales para los niños/as, tal como jugar con otros niños/as o participar en juegos o deportes?

Ninguna parte del tiempo 1
   Una poca parte del tiempo 2
   Alguna parte del tiempo 3
   La mayor parte del tiempo 4
   Toda la parte del tiempo 5

How many days of school did (child’s name) miss in the past 12 months because of asthma?

______ days

¿Cuántos días (nombre del niño/a) faltó a la escuela en los últimos 12 meses por asma?

______ días
HEALTH CARE USE
Medications
Please get the medications (child’s name) has taken for asthma in the last 2 months. For each medication, I will ask you the name, instructions for use in the label, the form of medication (e.g. pills, syrup, inhaler), and when the child took it.

a. Name of medication:________________________

b. Dosage as appears on label:________________________

c. Form of medication:________________________

d. Did the doctor suggest (child’s name) take medication prior to exercise?  
   - yes  
   - no

e. During the past 2 months, how many days did (child’s name) actually take the medication? _______ # of days

Comments:________________________________________

Doctor Visits
During the past 12 months, about how many times did (child’s name) see or talk to a medical doctor or assistant about (child’s name)’s asthma? (Do not count doctors seen while in an overnight patient in the hospital).

_______ number of doctor visits in last 12 months

Comments:________________________________________

Emergency Room Use
How many times has (child’s name) gone to the emergency room for asthma?

_______ times in the last 2 months

_______ times in the last 12 months

Comments:________________________________________

Hospitalizations
How many times has (child’s name) been hospitalized for asthma?

_______ times in the last 2 months

_______ times in the last 12 months

Comments:________________________________________

Type of Regular Doctor
What kind of doctor regularly takes care of (child’s name)’s asthma?

- Pediatrician  1
- Allergist or pulmonologist  2
- Family doctor  3
- Emergency room doctor  4
- Other: _______  5
- Does not have a regular doctor  6

Comments:________________________________________

¿Qué tipo de doctor cuida regularmente el asma de (nombre del niño/a)?

- Pediatra  1
- Alergista o pneumólogo  2
- Doctor de familia  3
- Doctor de sala de emergencia  4
- Otro: _______  5
- No tiene doctor regular  6

ENVIRONMENTAL EXPOSURES
Is anyone in the household currently smoking cigarettes?

- Yes  1
- No  2

¿Alguien en la casa fuma cigarillos actualmente?

- Sí  1
- No  2

Do you have any of the following inside your home?

- furry pets  
  - Yes  
  - No

- stuffed animals  
  - Yes  
  - No

- cockroaches  
  - Yes  
  - No

- mold  
  - Yes  
  - No

- dust  
  - Yes  
  - No

¿Tiene cualquiera de lo siguiente dentro de su casa?

- mascotas peludas  
  - Sí  
  - No

- animales/juguetes de peluche  
  - Sí  
  - No

- cucarachas  
  - Sí  
  - No

- moho  
  - Sí  
  - No

- polvo  
  - Sí  
  - No

OTHER PARENT PERCEPTIONS
Worry Overall
During the past 2 months, how much has your child’s asthma worried or concerned you?

- Not at all  1
- A little  2
- Somewhat  3
- A great deal  4
- Extremely  5

¿Durante los últimos 2 meses, cuanto le preocupó o inquietó el asma de su hijo/a?

- Nada  1
- Un poco  2
- Algo  3
- Muchísimo  4
- Extremadamente  5

Worry About Medicines
During the past week, how worried or concerned were you about your child’s asthma medications and side effects?

- Very, very worried/concerned  1
- Very worried/concerned  2
- Fairly worried/concerned  3
- Somewhat worried/concerned  4
- A little worried/concerned  5
- Hardly worried/concerned  6
- Not worried/concerned  7

¿Durante la última semana, ¿cómo le preocupó o inquietó el tratamiento de su hijo/a?

- Muy, muy preocupado/inquieto  1
- Muy preocupado/inquieto  2
- Bastante preocupado/inquieto  3
- Algo preocupado/inquieto  4
- Un poco preocupado/inquieto  5
- Apenas preocupado/inquieto  6
- Nada preocupado/inquieto  7

Worry About Activities
During the past week, how worried or concerned were you about your child’s performance of normal daily activities?

- Very, very worried/concerned  1
- Very worried/concerned  2
- Fairly worried/concerned  3
- Somewhat worried/concerned  4
- A little worried/concerned  5
- Hardly worried/concerned  6
- Not worried/concerned  7

¿Durante la última semana, ¿cómo le preocupó o inquietó el desempeño diario de su hijo/a?
Durante la última semana, ¿cuán preocupado/a o inquieto/a estuvo usted sobre el desempeño de actividades normales de cada día de su hijo/a?
- Muy, muy preocupado/inquieto
- Muy preocupado/inquieto
- Bastante preocupado/inquieto
- Algo preocupado/inquieto
- Un poco preocupado/inquieto
- Apenas preocupado/inquieto
- Nada preocupado/inquieto

Severity
Overall, how would you rate the severity of (child’s name) asthma?
- Very mild
- Mild
- Moderate
- Severe
- Very severe

¿En general, cómo estima usted es de severa el asma de (nombre del niño/a)?
- Muy leve
- Leve
- Moderada
- Severa
- Muy severa

SOCIODEMOGRAPHICS
Child Ethnicity
To what ethnic group does (child’s name) belong?
- Latino/Hispanic-American
- Black/African-American
- White, non-Latino/Hispanic
- Asian-American
- Other:

¿A que grupo étnico pertenece (nombre del niño/a)?
- Latino/Hispanoamericano
- Negro/Afroamericano
- Blanco, no Latino/Hispano
- Asiático-americano
- Otro:

Child’s Country of Origin
Where was your child born?
- City
- Country

¿Dónde nació su hijo/a?
- Ciudad
- País

Parent Ethnicity
To what ethnic group do you belong?
- Latino/Hispanic-American
- Black/African-American
- White, non-Latino/Hispanic
- Asian-American
- Other:

¿A que grupo étnico pertenece —usted?
- Latino/Hispanoamericano
- Negro/Afroamericano
- Blanco, no Latino/Hispano
- Asiático-americano
- Otro:

Educational Level
What is the highest grade or year of school that you completed?
(circle one)
- Elementary 00 01 02 03 04 05 06 07 08
- High School 09 10 11 12
- College 13 14 15 16 17+
- Primaria 00 01 02 03 04 05 06 07 08
- Secundaria 09 10 11 12
- Universidad 13 14 15 16 17+

APPENDIX 2. Bilingual Child Survey Measures Used
The following survey items were selected from Weston and translated by Marielena Lara (bilingual Spanish native speaker) into Spanish. The English and Spanish items were pilot-tested before use. We did not modify the items to include a specific time frame for child recall of exercise-induced symptoms. Previous research indicates that a child’s capacity to conceptualize illness and symptoms is related to age and that preadolescent children can have difficulty with time-related information. We believed that more error would be introduced by using previously untested child items and that the younger children in our sample would not be able to understand a specific time frame.

Exercise-induced Wheeze
1. Do you get wheezy breathing when you exercise or play sports?
- Never
- Not very often
- Quite often
- Always

1. ¿Te da silbido o pito cuando haces ejercicio?
- Nunca
- No muchas veces
- Bastante
- Siempre

Exercise-induced Cough
2. Do you cough a lot when you exercise or play sports?
- Never
- Not very often
- Quite often
- Always

2. ¿Toses mucho cuando haces ejercicio?
- Nunca
- No muchas veces
- Bastante
- Siempre
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/content/102/6/e68.full.html