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Asthma and Adaptive Functioning among Homeless Kindergarten-Aged Children in Emergency Housing

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Abstract

Background—Children who experience homelessness have elevated rates of asthma, a risk factor for other problems.

Purpose—Examine rates of asthma and its relation to health care use and adaptive functioning among young children staying in family emergency shelters.

Methods—Children and caregivers (N=138) completed assessments in shelters, including measurement of child cognitive functioning, parent report of child health care service utilization and asthma diagnosis, and teacher report of child school functioning.

Results—Asthma diagnosis was reported for 21% of 4-to-6-year-old children, about twice the national and state prevalences. Children with asthma used more health care services and had worse peer relationships. Asthma did not relate to cognitive test performance or subsequent academic performance, or to other behavior problems in school.

Conclusions—High rates of asthma remain an important issue for children in emergency family housing, a context with high levels of child risk for toxic stress exposure and developmental problems.

Keywords

Family homelessness; asthma; cognitive functioning; risk; early school years; peer relationships

Asthma is the most common chronic illness among children in the United States. Nationally, about 10 to 14% of children have been diagnosed with asthma,¹ including 9.5% of children in the State of Minnesota.² Furthermore, low-income, racial minority children are more likely to be diagnosed with asthma,^{1, 3-7} more likely to be diagnosed with more severe and persistent forms of asthma,⁸ less likely to have their asthma well controlled through medication use,^{9, 10} more likely to seek emergency room (ER) treatment for asthma,^{3, 8, 9} have higher overnight hospitalization rates,³ and have higher asthma-related mortality rates.^{3, 11} Disparities are particularly pronounced for African American/Black children,^{1, 3} and for preschool-aged children with respect to ambulatory physician visits, ER visits, and hospitalizations.¹⁰ Thus, there are robust and longstanding socioeconomic and racial disparities related to diagnosis and treatment of asthma.

Asthma rates are particularly high among children and youth staying in American emergency homeless shelters, who number over 300,000 each year with low-income, urban, ethnic minority children overrepresented.¹² In the late 1990s, McLean and colleagues¹³ estimated, based on observed asthma symptoms in three New York emergency shelters, that true childhood asthma rates were about 40%, although only 26.9% had received the diagnosis from a physician. A subsequent study (1999 to 2002) found asthma prevalence in New York to be about 33% among homeless children in shelter with about half of those having a physician's diagnosis.¹⁴ These studies suggest that asthma rates and the proportion of diagnosed children change over time within the population of homeless children, likely due to changes in national patterns of asthma, homelessness, and availability of health services among families. A study of kindergarten-aged children from an emergency family shelter in Minneapolis (assessed 2006 to 2007) found that 27.9% had an asthma diagnosis.¹⁵ In the Fragile Families Study, Park, Fertig, and Allison¹⁶ also found a high rate of asthma among homeless children (21%), but it was not significantly higher than the rate among more stably housed, low-income peers (17%). Nevertheless, across these studies, asthma rates for children living in a shelter were consistently two to three times the national prevalence. It is not clear as to the main contributors of this increased prevalence, with hypotheses ranging from increased rates of exposure to risk factors in the physical environment (e.g., pollution, mold, moisture, rodent and insect droppings, tobacco smoke), the possibility of increased rates of respiratory infections in early life, and hypotheses involving altered functioning of physiological systems due to chronic stress early in life (i.e., attenuated glucocorticoid levels) with implications for inflammation and atopic disease.^{17, 18}

Meanwhile, there are clear consequences of asthma for health and service utilization, it remains unclear whether asthma diagnosis acts as a risk factor for the behavioral, emotional, and cognitive developmental problems that occur at higher rates among homeless children.¹⁹ Children with asthma have shown higher levels of attention-deficit/hyperactivity (ADHD) symptoms at school.^{15, 20} Yet, there is scant research on the neurocognitive and intellectual functioning of children with asthma, with several studies finding no association.²¹⁻²⁴ Generally, more severe cases of asthma have been linked with higher levels of behavior problems, especially if symptoms are poorly managed or associated with poor overall physical health.^{20, 25, 26} Moreover, childhood asthma has been linked to internalizing symptoms such as depression and trait (more persistent, everyday) anxiety among older

children (although results are mixed).^{26–30} In general, most existing research on the behavioral, emotional, and cognitive functioning of children with asthma has been completed with convenience samples of racial/ethnic majority children who are older and have mild cases of asthma.^{21, 22, 31, 32} Additional work is warranted to understand how asthma is related to functioning in younger children, especially from diverse racial/ethnic backgrounds.

Past research suggests that asthma diagnoses convey little risk for poor achievement during the school years.^{31, 32} However, disadvantaged children just entering school may be an exception. Predominately low-income children with asthma entering kindergarten in Rochester, New York were more likely to score lower on a parent-report measure of school readiness skills. Parents also were more likely to rate children with asthma as needing additional help learning.³³ A different study using a general cohort of children entering school in Christchurch, New Zealand found few differences in academic achievement at the start of the year as measured with norm-referenced, standardized assessments.²⁴ However, children with asthma were behind their peers in reading by the end of the first year of school, suggesting differential learning. These studies highlight the importance of research on the possible impact of asthma on academic achievement in young children from disadvantaged backgrounds.

Cutuli and colleagues¹⁵ evaluated a sample of kindergarten-aged children staying in emergency shelter with their families during 2006 and 2007, emphasizing the importance of considering asthma rates, service use, and multi-domain functioning in the developmentally important context of school. As noted above, they found high rates of asthma (27.9%). Children who had asthma were compared with those without asthma diagnoses on several important domains of functioning, including behavior problems at home and school, attention-deficit/hyperactivity symptoms at home and school, academic functioning at school, and observed cognitive functioning via tests of intelligence and executive functions (such as attention, working memory, set-shifting or the ability to cognitively switch between different sets of rules or task demands). Those analyses identified links between childhood asthma and attention-deficit/hyperactivity disorder symptoms at home, and both externalizing symptoms and lower levels of academic functioning in the classroom. In addition, few children with asthma diagnoses were receiving any controller medication (34%), while this group had more hospitalizations than their peers without asthma.

Building on earlier research, the current study had two goals. The first was to replicate earlier findings that young children staying in family emergency shelters report high rates of asthma, accompanied by high health care utilization. We expected parents to report rates two to three times greater than the national and state averages. Children with a reported asthma diagnosis were expected to have higher rates of health care utilization compared to those without the diagnosis, with respect to medication, primary care, emergency department, and hospitalization rates. The second goal was to examine child functioning in the developmentally important context of the early school years. Based on earlier findings, we expected that homeless children with asthma would show lower levels of academic functioning (academic competence and school engagement) and higher levels of behavior problems (known as externalizing symptoms). The assessment protocol was similar to that

of Cutuli *et al.*,¹⁵ testing for differences in important areas of cognitive functioning, behavior problems (externalizing symptoms), and attention-deficit/hyperactivity symptoms, while extending consideration to emotional problems (internalizing symptoms) and relationships with peers and with the teacher at school. Also like Cutuli *et al.*, we consider families staying in shelter in urban Minnesota. This makes it possible to examine whether the homelessness-asthma link may have changed with changes in the homeless population,^{13, 14, 34} especially any differences that may have emerged due to the financial crisis of 2008. These analyses also aimed to fill gaps in the literature regarding asthma and its effects for low-income, urban children, a group that is underrepresented in research and more likely to experience high levels of stress important for health and other developmental outcomes.^{18, 35}

Methods

Participants and procedures

One hundred thirty-eight parents and their 4–6 year old children participated. All families were residing in one of three emergency shelters during the summers of 2008 and 2009. These shelters house the majority of families who utilize emergency shelter in the Twin Cities metro area, and represent over 60% of all children in shelter entering the Minneapolis Public Schools. The study was approved and overseen by the Institutional Review Board of the University of Minnesota, The Research, Evaluation, and Assessment Departments of the Minneapolis Public Schools and St. Paul Public Schools, as well as the shelter providers at each site. Written, informed consent was obtained from parents and verbal assent from children.

Children were entering kindergarten or first grade the subsequent fall. Children were excluded if parents indicated the presence of any previously diagnosed developmental disability involving impaired cognitive functioning that would prevent the child from completing cognitive assessments. Due to limitations in our materials and personnel, an inclusion criterion was that both the child and a parent had to identify as an English-language speaker. Thirteen families were excluded because of this English-language requirement. Families were recruited after their third night in shelter to allow time to acclimate. Additional details regarding recruitment procedures and participation characteristics are available elsewhere.³⁶ Seventy-two percent of all eligible families participated. Demographic characteristics of participating families were similar to those of families sheltered in the Twin Cities, suggesting a representative sample.

About half ($n = 78$; 56.5%) of the children were female. According to parents' report, 91 (65.9%) of the children were African American or Black American, 23 (16.7%) multiracial, 8 (5.8%) American Indian, 6 (4.3%) white, and 10 (7.2%) were identified as another race or ethnicity. The average number of nights in shelter at time of participation was 32.93 ($SD = 44.90$). The majority of the children's primary caregivers were biological mothers (92.7%). See Table 1.

Measures

Parents and children each completed simultaneous hour-long assessments on-site in shelter. Research assistants performing child assessments were blind to parent-report data, thus blind to child asthma status. Teachers completed a measure of functioning at school beginning about two months after the start of the school year following study participation. Measures previously have shown good reliability and validity in other research with similarly-aged children in emergency shelter.^{15, 36–38}

Asthma status, medication, and service utilization—Parents completed an abbreviated version of the MacArthur Health and Behavior Questionnaire³⁹ administered as an interview. This measure asks, ‘Has your child *ever* had ... Asthma’ as well as other medical issues and health care utilization. It also asks about any regular medications; the number of sick visits to a primary care physician in the past year; whether and, if so, how many times the child had visited the ER in the past year, whether and, if so, how many times the child had ever been hospitalized overnight; and the length of the longest hospitalization.

Child IQ—Estimates of child intellectual functioning (IQ) were based on scores from the Peabody Picture Vocabulary Test, Fourth Edition (PPVT-IV)⁴⁰ and the Block Design and Matrix Reasoning subscales of the Wechsler Preschool and Primary Scales of Intelligence, Third Edition (WPPSI-III).⁴¹ The PPVT-IV is a standardized assessment of receptive vocabulary. Block Design and Matrix Reasoning are two subscales from the WPPSI-III that measure performance or nonverbal IQ.⁴¹ Scaled scores from the two subscales ($r = .29$) were averaged as an estimate of performance IQ. Scores from the PPVT-IV and the WPPSI-III composite were converted to standard scales (z-scores) and averaged to create an estimate of the child’s overall IQ; these values were used in the analyses.

Executive function—Children completed six validated, standardized executive function (EF) tasks that together emphasized inhibitory control, working memory, set-shifting, and delay of gratification. These were the *Simon Says* task,^{42, 43} the *Dimensional Change Card Sort* (DCCS),⁴⁴ the *Peg-Tapping* task,⁴⁵ the *Computerized Pointing Stroop* task,⁴⁶ the *Dinky Toys* task,⁴⁷ and the *Gift Delay* task.⁴² Additional details on these tasks and their use in this study can be found elsewhere.³⁶ Overall EF scores were computed based on averaging z-scores from six EF task scores (Cronbach’s $\alpha = .71$). The validity and reliability of these assessments of executive functioning is reported elsewhere, and the assessments produce factors in which EF is distinguishable from IQ.⁴⁸

Teacher-reported school functioning—Overall, 114 of the 138 students (82.6%) were located in schools across the region, resulting in 111 (80.4%) completed teacher questionnaires from schools across four contiguous states. Teachers completed the teacher version of the *MacArthur Health and Behavior Questionnaire*,³⁹ rating each child on questions composing subscales reflecting attention-deficit/hyperactivity disorder (ADHD) symptoms, behavior problems (externalizing symptoms apart from ADHD symptoms), emotional problems (internalizing symptoms), academic functioning (academic competence and school engagement), getting along with other children (peer relationships), and the teacher-child relationship. Additional details about the methods of obtaining teacher report

data on this population are published elsewhere.³⁵ Means and standard deviations of study variables are presented in Table 2.

Missing data

Some data were missing due to child refusal or inability to understand tasks, or researcher inability to obtain a teacher-report for school outcomes. Data are assumed to be missing at random. Missing data were estimated using the recommended MCMC algorithm with fully conditional specification⁴⁹ in IBM SPSS Statistics 20. Data were imputed 20 times with results of analyses combined according to Rubin's Rules.⁵⁰ Complete data were available for the following variables: child age, sex, race/ethnicity, and child IQ. Rates of missing data for other variables were as follows: 1.4% for executive function scores and 19.6% for school outcomes. Results from analyses using imputed data are presented in all tables, unless otherwise noted.

Hypotheses were tested using linear regression for continuous outcome variables and logistic regression for dichotomous outcomes. All analyses controlled for child age and sex. Some continuous variables violated normality assumptions. Outliers were replaced with next highest value and variables were transformed to accommodate parametric tests where necessary. Presented means and standard deviations are for untransformed variables to facilitate interpretation.

Results

Twenty-nine (21%) children had been diagnosed with asthma according to their parents' report. As a result, analyses comparing groups of children with and without asthma diagnosis were sufficiently powered to detect medium-to-large sized effects. Children with asthma were more likely to be taking regular medication at the time of the assessment ($\text{Exp}(B) = 7.71$; 95% CI = 2.66 – 22.37; $p < .001$). Nine (31% of those with asthma) were taking any sort of regular asthma medication. Specifically, two were taking montelukast (Singulair) alone to treat their asthma, two a broncodilator alone (Albuterol), two montelukast with a broncodilator, two a broncodilator and an inhaled corticosteroid (Pulmicort / Budesonide or Flovent / Fluticasone), and one a broncodilator plus an oral corticosteroid (Prednisone).

Compared with their homeless peers, children with asthma were more likely to ever have been hospitalized for one night or more ($\text{Exp}(B) = 4.56$; 95% CI = 1.84 – 11.25; $p = .001$), were hospitalized more times in their lives ($B = 0.91$; SE = 0.18; $p < .001$), and had longer hospitalizations (based on number of days of longest stay: $B = 1.92$; SE = 0.55; $p < .001$). Children with asthma were not more likely to have used the ER in the preceding year ($\text{Exp}(B) = 2.09$; 95% CI = 0.86 – 5.06; $p = .10$), but those with asthma used the ER more frequently ($B = 0.58$; SE = 0.17; $p < .001$). Finally, children with asthma visited their primary care physician more frequently for non-routine / sick visits ($B = 0.12$; SE = 0.05; $p = .008$). See Table 3.

Asthma was not associated with cognitive functioning, considering either executive functioning ($B = -0.14$; SE = 0.13; $p = .29$) or IQ estimates ($B = 0.04$; SE = 0.16; $p = .79$).

At school, asthma was not related to ADHD symptoms ($B = 0.05$; $SE = 0.13$; $p = .74$), behavior problems / externalizing symptoms ($B = 0.04$; $SE = 0.03$; $p = .16$), or emotional problems / internalizing symptoms ($B = 0.02$; $SE = 0.03$; $p = .64$). Asthma was not associated with academic functioning ($B = -0.91$; $SE = 1.03$; $p = .38$). Teachers reported more difficulty getting along with peers at school for children with asthma ($B = -2.23$; $SE = 0.76$; $p = .003$). There was no association between asthma and teacher-child relationship scores ($B = -0.79$; $SE = 1.19$; $p = .51$). See Table 2.

Discussion

Kindergarten-aged children staying in emergency homeless shelter with their families had lifetime rates of asthma (21%) that were about twice the national prevalence and more than twice the state prevalence of 9.5%. Children staying in shelters have shown elevated lifetime rates of asthma in multiple studies, a finding now replicated across multiple years in multiple geographies.^{13–16} The 21% rate in the current study is somewhat lower than estimates of the true asthma prevalence among children in emergency shelter from other studies, but it is consonant with higher rates of asthma and asthma symptoms reported for homeless children who had received an asthma diagnosis from a physician.^{13–16} The rate found in the current study is likely to be an underestimate of the true rate of asthma experienced by children in shelter as some children may have symptoms of asthma that has gone undiagnosed. Nonetheless, children staying in emergency shelter with their families appear to account for a meaningful portion of the elevated lifetime rates of asthma among low-income, urban, ethnic minority children.

Children with asthma had health care service utilization and medication rates that suggest challenges in managing their condition. Children with asthma were more likely to be taking regular medication compared to peers without asthma (38% versus 7%), but less than a third (31%) of diagnosed children were taking asthma medication, and only one was taking an inhaled corticosteroid. It is important to recognize that the current study did not inquire about asthma type or severity, as children may have mild or intermittent forms of asthma that do not require constant management. Nevertheless, few children with asthma diagnoses were actively managing their condition with preventive asthma medications, a finding that echoes national statistics.¹⁰

Children with asthma also had more health care contacts. They had more sick visits to primary care physicians (1.2 vs. 0.6 visits), were more likely to have been hospitalized overnight (48% vs. 17%), had a greater number of hospitalizations (1.5 vs. 0.2), had longer hospitalizations (based on longest hospitalization: 4.1 vs. 0.6 days), and visited the ER more frequently in the past year (1.2 vs. 0.3 times) than peers without asthma.

Future work should investigate patterns of use and presentation severity during these contacts to understand how families engage health care. The experience of homelessness may present multiple challenges to asthma management. These include disconnection from the family's usual primary care physician and other means of renewing prescription medication, increased exposure to environmental triggers outside of the family's control in the shelter context (e.g., cigarette smoke, allergens), and any of a plethora of psychosocial

stressors that are more common during homeless episodes (e.g., exposure to and flight from domestic violence).¹⁹ These factors also may contribute to new diagnoses over time, such as by exacerbating symptoms that otherwise would not have manifested at clinical levels. In addition, relocation due to residential mobility and moves to shelter may preclude families from following up with their primary care physician, increasing the risk of ER use and hospitalization. Some families also may have difficulty engaging primary care physicians and/or adhering to asthma action plans because of a lack of connectedness to services for low-income families and other factors related to family chaos. Nevertheless, the shelter experience can be an opportunity to connect families to local mainstream services while engaging and supporting parents in recognizing asthma symptoms and managing their children's conditions. Additional research is needed to understand the challenges and opportunities of the shelter context with respect to managing childhood asthma.

Children with asthma had more difficulty getting along with peers at school. The authors are not aware of any other studies that consider peer relationships and asthma among children in the early school years exclusively. The current findings should be considered in attempts at replication. Like most studies of asthma's association with other domains of functioning, findings are mixed in work with older children: Baker, Niec, and Meade⁵¹ found that 8 to 14 year olds with persistent asthma had the poorest quality friendships and worst social expectations relative to two comparison groups. Meanwhile, other work considering asthma more generally found no association with social competence⁵² or peer relationships, except that children whose asthma required more hospitalizations experienced more peer rejection.⁵³ Given the higher rates of ER use and hospitalizations among children with asthma in the current study, children's ability to make friends and function in the peer context may be impacted by frequent absences or health concerns related to their asthma beyond other challenges that accompany homelessness.

Asthma was not associated with differences in cognitive functioning, externalizing or behavioral symptoms, or academic functioning. These results contrast with past research indicating that children with asthma have higher rates of some problems that are not rare among at-risk kindergarteners, like ADHD symptoms and behavior problems.^{15, 20, 25} There was also no difference in internalizing symptoms like anxiety and depression in the classroom, which may be more difficult to measure through teacher-report of young children's behavior.⁵⁴ As in past work with children in emergency shelter, asthma was not related to observed cognitive functioning.¹⁵

Contrary to the hypothesis, asthma was not related to academic functioning. Cutuli and colleagues¹⁵ found that similarly-aged children with asthma in emergency shelter were rated lower on academic functioning. Likewise, Halterman and colleagues³³ found that parents rated preschoolers with asthma as having lower school readiness. In contrast, Liberty and associates²⁴ found that asthma was related to lower achievement only at the end of the first year of schooling with no difference at the start of the year. It may be that differences emerge over time in academic functioning as children with asthma face more challenges or miss more school.

A second possibility is that children with more persistent and severe cases of asthma have more difficulty in the classroom, especially if the condition is poorly managed.^{20, 25, 26} Children in the current study had seemingly low rates of medication use and high rates of ER visits and hospitalizations. However, conclusions are limited by the lack of symptom severity or severity of asthma diagnoses, and very little information on whether or how symptoms are controlled. As such, differences related to asthma severity and management could not be detected in the current study.

The third, and perhaps least speculative, explanation of the current results is that asthma imparts minimal risk to academic functioning.^{31, 32} Asthma diagnosis might not be related to academics, or it may interfere only minimally with learning in kindergarten and first grade. Additional research is needed that considers the relationship of asthma diagnosis, severity, and management on academic functioning over time among low-income, urban, ethnic minority children. The relation between asthma and school functioning remains unclear.

The current study had a number of strengths, including considering an underrepresented population in the important context of family emergency shelter, the use of multi-method assessment (parent-report, teacher-report, and child observation), the use of validated measurement, and a relatively high participation rate that reflects the percentage of the local eligible population participating in the study. Findings must also be interpreted in light of some key limitations. These include limited statistical power that allowed the detection of medium to large effects. It may be that asthma has smaller-but-important effects on child functioning that could not be detected in the current study. Another consideration is that many children and parents were assessed within days or weeks of potentially traumatic events related to the move to emergency shelter. It is unclear how such events might be impacting child performance on study measures or parent-report of asthma status and health care utilization. A third limitation is that asthma status was determined based on parent report of whether the child ever had asthma. This rate is unlikely to reflect the true asthma rate as some children may have gone undiagnosed despite having clinical levels of symptoms, while others may have shown clinical levels of symptoms earlier in life that have since subsided. Finally, associations with child functioning might be tied to specific asthma diagnoses (e.g., severe, persistent asthma) and how well these conditions are controlled, considerations that should be reflected in future research.

Conclusion

This study found high rates of asthma diagnosis among kindergarten-aged children staying in emergency shelters with their families. Children with asthma were more likely to be using medication regularly, but only about a third were receiving any asthma medication. Furthermore, children with asthma used a greater number of health care services, including primary care sick visits, more and longer overnight hospitalizations, and more frequent visits to the ER. Asthma diagnosis was not related to academic, cognitive, emotional, or behavioral functioning at school. However, students with asthma had more difficulty getting along with peers. These findings add to past work by considering children experiencing homelessness, a group that is much more likely to experience high levels of stress that can

contribute to health disparities for low-income, urban children more generally. Recognizing the high prevalence of asthma among young homeless children presents an opportunity to support the health and positive development of these at-risk students.

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Table 1

Asthma rates and demographic characteristics.

	<u>Asthma</u>	<u>No Asthma</u>	<u>Total</u>
Total:	29 (21%)	109 (79%)	138
Female:	12 (41%)	66 (61%)	78 (57%)
Male:	17 (59%)	43 (39%)	60 (43%)
Age, years, <i>M</i> (SD):	5.8 (0.6)	5.8 (0.6)	5.8 (0.6)
Minority Status	28 (97%)	104 (95%)	132 (96%)
Black or African American	19 (66%)	72 (66%)	91 (66%)
Other Race ^a	10 (34%)	37 (34%)	47 (34%)

^a Specific racial breakdown suppressed to preserve participant confidentiality.

Table 2

Child functioning by asthma status.

Variable	Mean Score (Std. Dev.)		
	Asthma	No Asthma	Entire Sample
Cognitive Abilities			
Executive Function Tasks	−0.11 (0.74)	0.03 (0.69)	0.00 (0.70)
IQ Estimate	0.04 (0.85)	−0.01 (0.73)	0.00 (0.75)
School Functioning			
ADHD Symptoms Score	0.81 (0.55)	0.71 (0.57)	0.73 (0.56)
Externalizing Symptoms Score	0.53 (0.49)	0.36 (0.46)	0.46 (0.47)
Internalizing Symptoms Score	0.50 (0.49)	0.45 (0.44)	0.46 (0.46)
Peer Relationships **	3.29 (0.62)	3.59 (0.53)	3.53 (0.56)
Teacher-Child Relationship	3.83 (0.72)	3.94 (0.77)	3.91 (0.76)
Academic Functioning	3.22 (0.73)	3.39 (0.71)	3.36 (0.71)

**
 $p < .01$

Table 3

Rates of health service use by asthma status.

	<u>Asthma</u>	<u>No Asthma</u>	<u>Entire Sample</u>
Ever Hospitalized Overnight (%) **	14 (48%)	18 (17%)	32 (23%)
Number of times, M (SD) ***	1.46 (2.90)	0.21 (0.55)	0.48 (1.50)
Length (days) of longest, M (SD) ***	4.14 (11.10)	0.59 (2.10)	1.34 (5.61)
Any ER Visit in the Past Year (%)	12 (41%)	28 (27%)	40 (29%)
Number of times, M (SD) ***	1.24 (2.85)	0.32 (0.62)	0.51 (1.46)
Primary Care Sick Visits, Past Year **	1.22 (1.53)	0.60 (0.91)	0.74 (1.10)
Regular Medication Currently (%) ***	11 (38%)	8 (7%)	19 (14%)
Regular Asthma Medication (%)	9 (31%)	0	9 (7%)

**
 $p < .01$;

 $p < .001$