Association of Youth and Caregiver Anxiety and Asthma Care Among Urban Young Adolescents

Jean-Marie Bruzzese, PhD; Laura C. Reigada, PhD; Alexandra Lamm, MSEd; Jing Wang, MS; Meng Li, MA; Stephanie O. Zandieh, MD, MS; Rachel G. Klein, PhD

From the Department of Child and Adolescent Psychiatry (Dr Bruzzese, Ms Lamm, Ms Wang, Ms Li, and Dr Klein), Department of Pediatrics (Dr Zandieh), NYU School of Medicine, New York, NY; and Department of Psychology, Brooklyn College of the City University of New York, Brooklyn, NY (Dr Reigada)
The authors declare that they have no conflict of interest.
Address correspondence to Jean-Marie Bruzzese, PhD, Columbia University School of Nursing, 630 West 168th Street, Mailcode 6, New York, NY 10032 (e-mail: jb3958@cumc.columbia.edu).
Received for publication December 5, 2015; accepted March 25, 2016.

ABSTRACT

OBJECTIVE: To examine the association of adolescent asthma-related anxiety, social anxiety, separation anxiety, and caregiver asthma-related anxiety with asthma care by urban adolescents.
METHODS: Participants were 386 ethnic minority adolescents (mean age 12.8 years) with persistent asthma and their caregivers. Adolescents reported what they do to prevent asthma symptoms and to manage acute symptoms, and if they or their caregiver is responsible for their asthma care. Adolescents completed the Youth Asthma-Related Anxiety Scale, and the social and separation anxiety subscales of the Screen for Child Anxiety and Emotional Disorders (SCARED); caregivers completed the Parent Asthma-Related Anxiety Scale. Linearity of the associations was assessed by generalized additive models. When there was no evidence for nonlinearity, linear mixed effects models were used to evaluate the effects of the predictors.
RESULTS: Adolescent asthma-related anxiety had a strong curvilinear relationship with symptom prevention ($P < .001$). Adolescents took more prevention steps as their anxiety increased, with a plateau at moderate anxiety. There was a linear relationship of adolescent asthma-related anxiety to symptom management ($\beta = 0.03$, $P = .021$) and to asthma responsibility ($\beta = 0.11$, $P = .015$), and of caregiver asthma-related anxiety to adolescent symptom prevention ($\beta = 0.04$, $P = .001$). Adolescent social and separation anxiety had weak to no relationship with asthma care. Results remained consistent when controlling for each of the other anxieties.
CONCLUSIONS: Asthma-related anxiety plays an important, independent role in asthma care. When low, adolescents may benefit from increased support from caregivers and awareness of the consequences of uncontrolled asthma. When elevated, health providers should ensure the adolescents are not assuming responsibility for asthma care prematurely.

KEYWORDS: adolescents; anxiety; asthma; parents; self-management; urban

ACADEMIC PEDIATRICS 2016;16:792–798

WHAT'S NEW

Asthma-related anxiety, a previously ignored construct in pediatric asthma, is associated with adolescents' prevention and management of asthma symptoms. This role is independent of their separation and social anxiety, and caregiver asthma-related anxiety.

ADOLESCENTS, A VULNERABLE population with relatively high asthma prevalence and morbidity,[1,2] do not take adequate steps to care for their asthma.[3] One potentially important explanation for inadequate self-care is comorbid anxiety. Youth with asthma are at increased risk for experiencing anxiety symptoms,[4] which in turn is associated with an increase in the perception of asthma symptoms,[5–7] nonadherence to peak flow monitoring,[8] and asthma-related school absences.[5] However, these findings lack clinical specificity, as research has been limited to negative affect and undefined anxiety.

Separation anxiety,[9] and to a lesser extent social anxiety,[4] are prevalent among youth with asthma. Yet their effect on asthma care has not been studied. Among adults, asthma-related anxiety, or the panic, fear, or worry in response to asthma symptoms, treatment, and consequences,[10] has been found to affect asthma self-management,[11] with high and low levels of asthma-related anxiety hampering self-management.[12] When asthma-related anxiety is high, adults overreact to their asthma symptoms and implement inappropriate self-management, including overusing quick-relief medication. When low, asthma symptoms are ignored, and treatment is neglected.[13] Both high and low asthma-related anxiety is associated with increased rates of hospitalizations.[13] In contrast, moderate levels of asthma-related anxiety are adaptive for asthma care in adults by optimizing asthma

management.[14,15] The effect of asthma-related anxiety on asthma self-care has not been examined in adolescents, but it is plausible to expect similar patterns.

Caregiver disease-specific anxiety has been found to adversely affect glycemic control in their children with diabetes[16] and to reduce treatment adherence in children with seizure disorders.[17] Despite this, caregiver asthma-related anxiety has yet to be studied.

Caregiver support around asthma care has been found to improve asthma control.[18] Yet caregivers often transfer medical responsibilities to their children before they possess the requisite skills or confidence to care for their asthma.[3] Subsequently, this premature transfer may increase the adolescent's asthma-related anxiety. Additionally, caregiver anxiety may interfere with the caregivers' ability to assist their adolescents' care for their asthma.[19] Despite this potentially important association between adolescent and caregiver anxiety on responsibility for asthma care, it has not been evaluated.

In urban ethnic minority young adolescents with persistent asthma, we report on the association of adolescent asthma-related anxiety, social anxiety, and separation anxiety, as well as caregiver asthma-related anxiety, to asthma care (ie, symptom prevention and management, adolescent and caregiver responsibility for asthma care). We also tested if adolescent anxieties (ie, asthma related, social, separation) and caregiver asthma-related anxiety would have independent relationships to asthma care. We hypothesized that 1) relatively low and high adolescent and caregiver asthma-related anxiety would be associated with fewer steps to prevent the onset of symptoms, and to manage existing symptoms; 2) adolescents' social anxiety and separation anxiety would be associated with asthma care; 3) relatively high adolescent and caregiver asthma-related anxiety would be associated with adolescents taking more responsibility for their asthma care than their caregivers; and 4) the anxieties would have independent relationships with asthma care.

METHODS

PARTICIPANTS AND PROCEDURES

Participants were 386 adolescents aged 11 to 14 years with persistent asthma and their primary caregivers who were part of a treatment study examining the efficacy of an intervention to improve asthma control among young adolescents.[3] We recruited 392 families over 4 years from 27 New York City public middle schools, where at least 50% of students were African American or Hispanic, and where, on average, 76% of the students were eligible for free or reduced-price school lunches. The adolescents were 5th- through 8th-grade students whose caregivers reported on a symptom-focused case detection form that their child was diagnosed with asthma, had taken prescribed asthma medication in the prior 12 months, had persistent asthma,[20] and had no significant learning or behavioral issues that would hinder participation in the treatment study. We defined persistent asthma according to the national guidelines[20] in place at the onset of the study: in the last 12 months caregivers reported that their child experienced 1) daytime symptoms at least 3 to 6 days per week, or 2) night awakenings due to symptoms 3 or more times a month. Six of the 392 adolescents enrolled in the treatment study had intermittent asthma; they were excluded from this report because their medical management would differ from those with persistent asthma.[20]

This study reports on measures obtained before treatment entry. Families completed surveys proctored by trained study staff after school, during evenings, or on weekends at the adolescent's school; adolescents and caregivers completed surveys in separate rooms and were compensated $10 and $30, respectively. Study procedures were approved by the institutional review boards of the NYU School of Medicine, Columbia University College of Physicians and Surgeons, the New York City Department of Education, and the New York City Department of Health and Mental Hygiene.

MEASURES

ASTHMA CARE

The adolescents completed 3 measures of asthma care. The Asthma Prevention Index and the Asthma Management Index, developed by our team for use in prior clinical trials, have good reliability (α = 0.70 and 0.53, respectively) and are treatment sensitive (ie, detect change in care after participation in an intervention).[21,22] The Asthma Prevention Index is a 9-item questionnaire regarding steps taken to prevent the onset of symptoms (eg, take daily medication, avoid triggers), where a 3-point scale indicates the frequency of each step (never; yes, but not all the time; yes, all the time). Across the 9 items, the 2 positive responses were collapsed into "yes" in order to obtain an overall count of steps taken, paralleling the format of the Asthma Management Index.

The Asthma Management Index reflects how adolescents manage existing symptoms; adolescents indicated yes or no to each of 7 steps (eg, observe if symptoms improve, ask for help). The total number of steps endorsed was used as an index of asthma management.

The Asthma Responsibility Questionnaire (ARQ)[23] comprises 10 items answered on a 5-point scale (1 = caregiver takes responsibility all the time, 3 = caregiver and adolescent share responsibility about equally, 5 = adolescent takes responsibility all the time). The mean of the items reflects whether the adolescent or caregiver is responsible for asthma care. The ARQ has demonstrated internal consistency and convergent validity.[23]

SOCIAL AND SEPARATION ANXIETY

Adolescents completed the social and separation anxiety subscales of the Screen for Child Anxiety and Emotional Disorders (SCARED).[24] Using a 3-point Likert scale (0 = not true or hardly ever true, 2 = very true or often true), adolescents indicated how much each of 15 statements described them in the last 3 months. The social anxiety subscale (7 items) assesses the extent to which the adolescent fears negative evaluation in social or