

Evaluating the Effects of Subjective and Objective Asthma Control Measures on the Transition of Inner City Adolescents and Young Adults with Asthma

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Introduction

Transitioning adolescents and young adults with asthma from pediatric to adult healthcare can prove difficult for the patient. An understanding of asthma self-management goals is essential in assuring that the transition needs of youth are adequately identified and supported in order to achieve optimal health outcomes.¹

In 2012, an estimated 11.2% of U.S. adolescents had asthma; this group had an increased risk of morbidity and mortality, in part due to suboptimal self-management.² Hispanic and African American children, and those of lower socioeconomic status, are found to have the highest asthma prevalence, worse outcomes, and are less likely to use controller medications.³ There are multiple factors that come into play when considering adherence to asthma treatment in the adolescent population, such as inaccurate symptom perception and their desire for normalcy in life; resulting in treatment noncompliance and subsequently poor asthma control.⁴ In this study, we examined the roles of both subjective and objective asthma control measures on transition of inner city adolescents and young adults with asthma in Newark, New Jersey.

Methods

Forty-nine adolescents and young adults, aged 12-21 years old, with asthma, were assessed in the pediatric pulmonary clinic while receiving typical asthma care. The patients were given the Asthma Control Test (ACT), Pulmonary Function Tests (PFT) and the Got Transitions Readiness Assessment Survey (GTRAS). General patient demographics were also collected. An ACT score of >19 signified subjective control; while, a forced expiratory volume in 1 second (FEV₁) score of >80% of predicted signified objective control or a FEV₁ to forced vital capacity ratio (FEV₁/FVC) > 85 (for ages 12-19) and > 80 (for ages >19) of predicted signified objective control. Microsoft Excel was used for statistical analysis.

Transition Importance and Confidence On a scale of 0 to 10, please circle the number that best describes how you feel right now.

How important is it to you to prepare for change to an adult doctor before age 22?

0 (not at all) 1 2 3 4 5 6 7 8 9 10 (very important)

How confident do you feel about your ability to prepare for change to an adult doctor?

0 (not at all) 1 2 3 4 5 6 7 8 9 10 (very confident)

My Health Please check the box that applies to you right now.

	Yes I know this	I need to learn this	Someone needs to do this... Who?
I know my medical needs.			
I can explain my medical needs to others.			
I know my symptoms including ones that I quickly need to see a doctor for.			
I know what to do in case I have a medical emergency.			
I know my own medicines, what they are for, and when I need to take them.			
I know my allergies to medicines and medicines I should not take.			
I carry important health information with me every day (e.g. insurance card, allergies, medications, emergency contact information, medical summary).			
I understand how health care privacy changes at age 18 when legally an adult.			
I can explain to others how my customs and beliefs affect my health care decisions and medical treatment.			

Using Health Care Please check the box that applies to you right now.

	Yes I know this	I need to learn this	Someone needs to do this... Who?
I know or I can find my doctor's phone number.			
I make my own doctor appointments.			
Before a visit, I think about questions to ask.			
I have a way to get to my doctor's office.			
I know to show up 15 minutes before the visit to check in.			
I know where to go to get medical care when the doctor's office is closed.			
I have a file at home for my medical information.			
I have a copy of my current plan of care.			
I know how to fill out medical forms.			
I know how to get referrals to other providers.			
I know where my pharmacy is and how to refill my medicines.			
I know where to get blood work or x-rays if my doctor orders them.			
I have a plan so I can keep my health insurance after 26 or older.			
My family and I have discussed my ability to make my own health care decisions at age 18.			

Figure 1: Questions from the Got Transition Readiness Assessment Tool.⁶

Asthma Control Test™ for teens 12 years and older. Know the score.

If your teen is 12 years or older have him take the test now and discuss the results with your doctor.

Step 1 Write the number of each answer in the score box provided.

Step 2 Add up each score box for the total.

Step 3 Take the test to the doctor to talk about your child's asthma score.

1. In the past 4 weeks, how much of the time did your asthma keep you from getting on much time at work, school or at home?

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

2. During the past 4 weeks, how often have you had shortness of breath?

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

3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness, or pain) wake you up at night or earlier than usual in the morning?

1 Not at all 2 A little of the time 3 Somewhat of the time 4 Most of the time 5 All of the time

4. During the past 4 weeks, how often have you used your rescue inhaler or oral steroid medication (such as prednisone)?

1 Not at all 2 A little of the time 3 Somewhat of the time 4 Most of the time 5 All of the time

5. How would you rate your asthma control during the past 4 weeks?

1 Completely controlled 2 Somewhat controlled 3 Not controlled 4 Completely uncontrolled 5 Not at all

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What does it mean if my child scores 19 or less?

- If your child's score is 19 or less, it may be a sign that your child's asthma is not under control.
- Make an appointment to discuss your child's asthma score with their doctor. Ask if you should change your child's asthma treatment plan.
- Ask your child's doctor about daily long-term medications that can help control airway inflammation and constriction, the two main causes of asthma symptoms. Many children may need to treat both of these on a daily basis for the best asthma control.

Figure 2: Asthma Control Test.⁷

Table 1: Selected Demographics

	%
Gender	
Male	51
Female	49
Age (Years)	
12-17	98
18-21	2
Insurance	
Public	96
Private	4
Race/Ethnicity	
African American	53
Latino	42
Other	5

Figure 3: Subjective and Objective Measures of Asthma Control versus Self-Perceived Preparation for Change

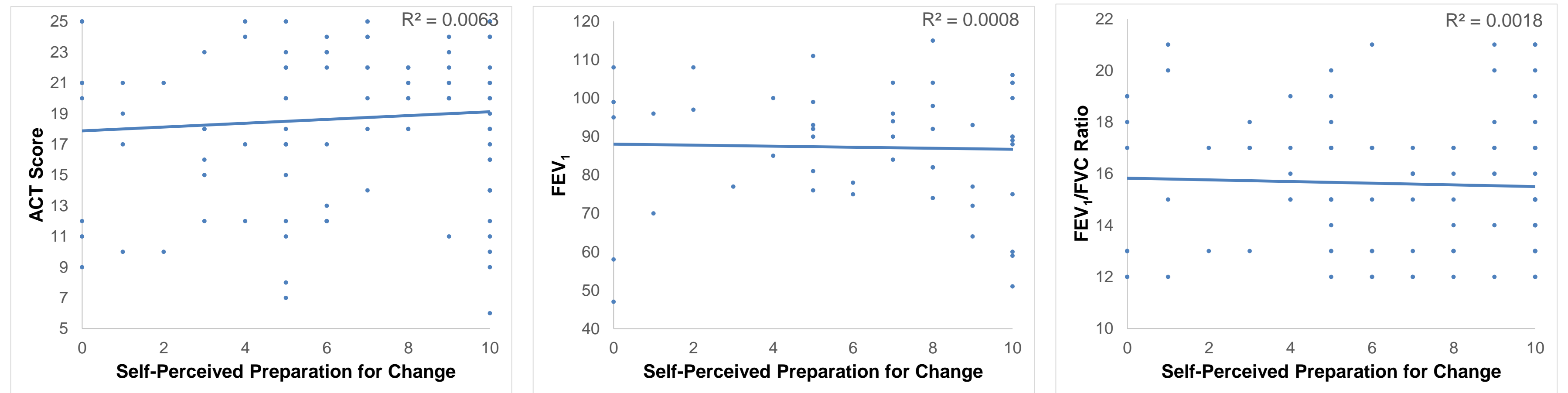
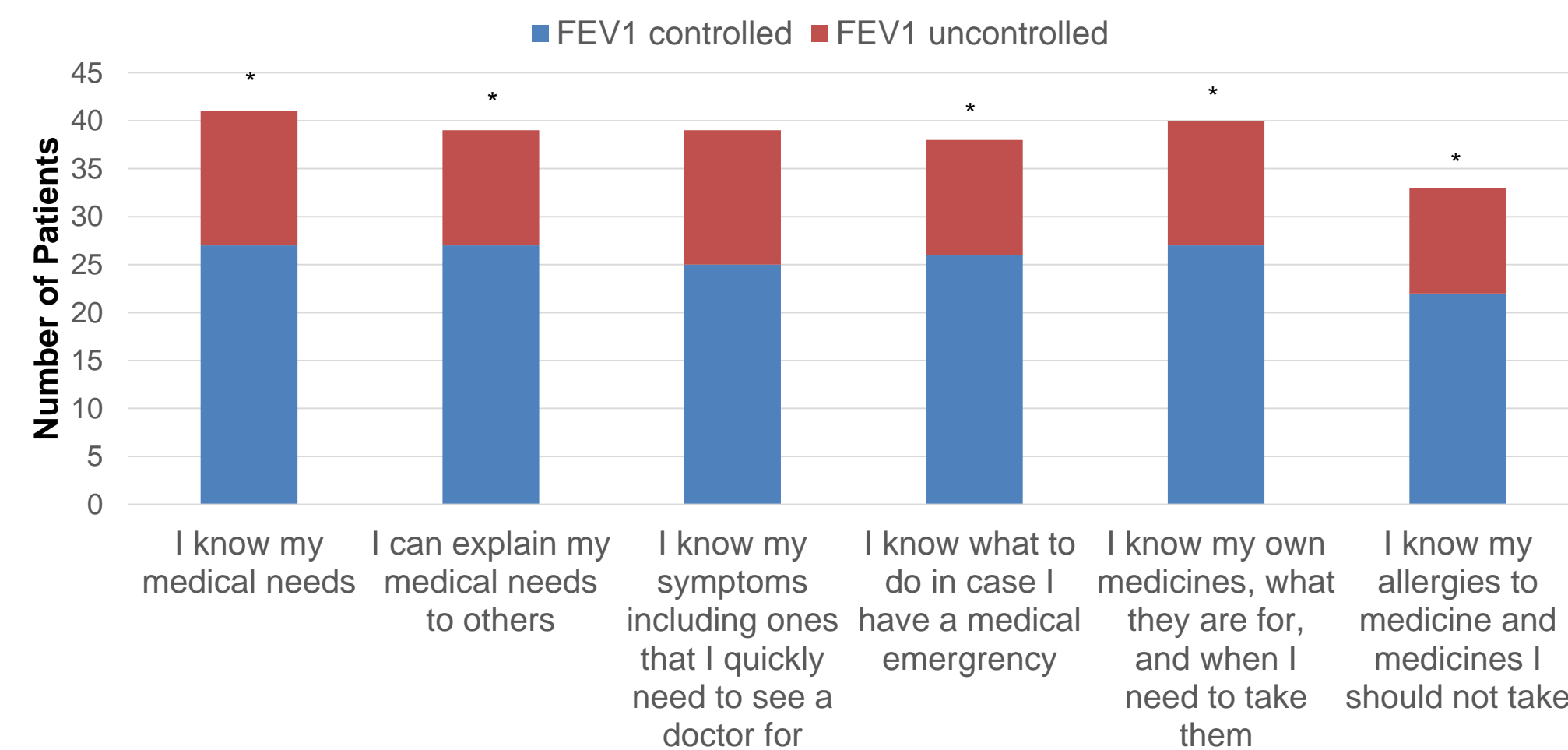
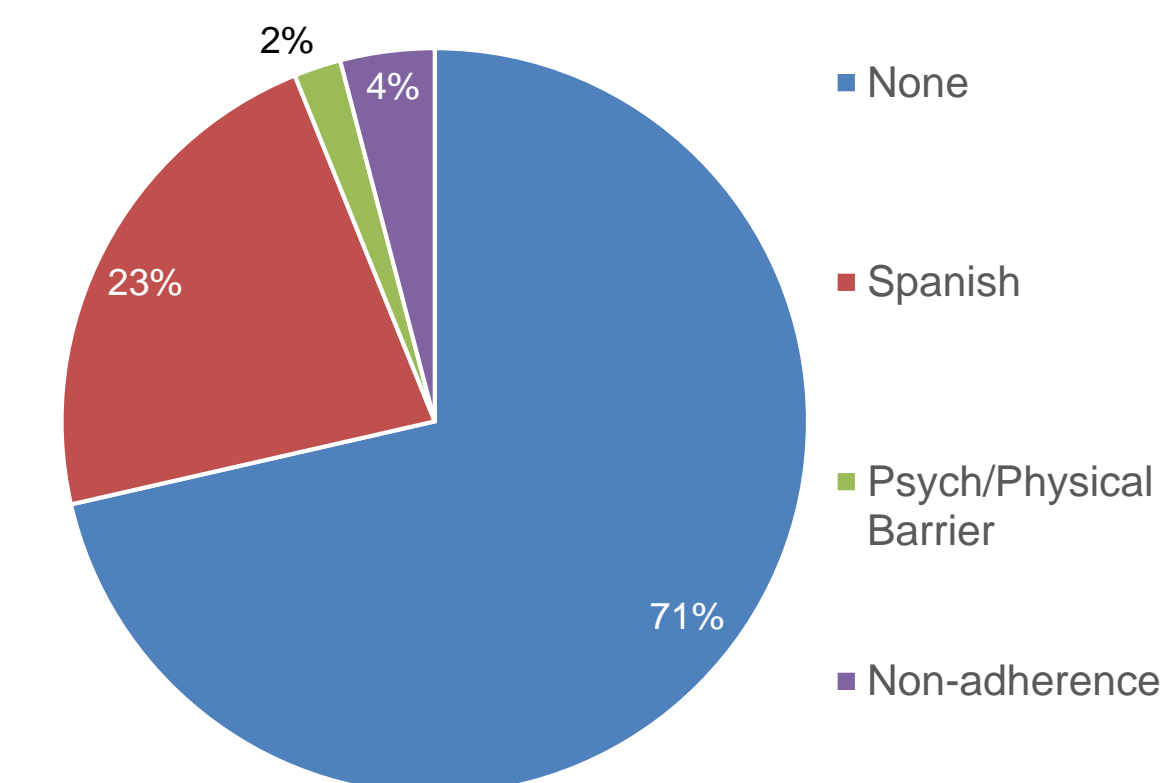


Figure 4: FEV₁ Control of Patients Who Answered "Yes" to the Below GTRAS Questions



GTRAS Question	P-Value
I know my medical needs	0.04
I can explain my medical needs to others	0.01
I know my symptoms including ones that I quickly need to see a doctor for	0.08
I know what to do in case I have a medical emergency	0.02
I know my own medicines, what they are for, and when I need to take them	0.02

Figure 5: Documented Barriers to Care



Discussion

- The demographics of the study reflect that of out patient population. This may limit the generalizability of the study to places that are urban and have similar patient cohorts. Their were slightly more males than females; typically, asthma is more prevalent in adolescents and young adults in males.
- When we compared the self-perceived preparation for change to internal medicine from pediatrics, there was no correlation to the ACT, FEV₁ and FEV₁/FVC ratio (R² of 0.0063, 0.0008, and 0.0018 respectively).
- There was a significant difference in the number of patients that marked "yes", see fig. 4, in select my health questions. This suggests that those of a controlled FEV₁ are more likely to know pertinent medical information pertaining to their asthma.
- The ACT did to correlate with any questions from the GTRAS.
- Most of the patient did not have a documented barrier to care; however, in those that did, the most common was Spanish speaking language barrier, see fig. 5.

Conclusions

Our study shows that patients with well controlled asthma are more likely to know vital medical needs and pertinent information. It is important that we effectively evaluate this avenue to discern whether well controlled baseline chronic illness in adolescents and young adults leads to improved transition and ultimately long-term outcomes.

References

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