

Investigating Different Approaches to Asthma Medication Education: A Randomized Survey

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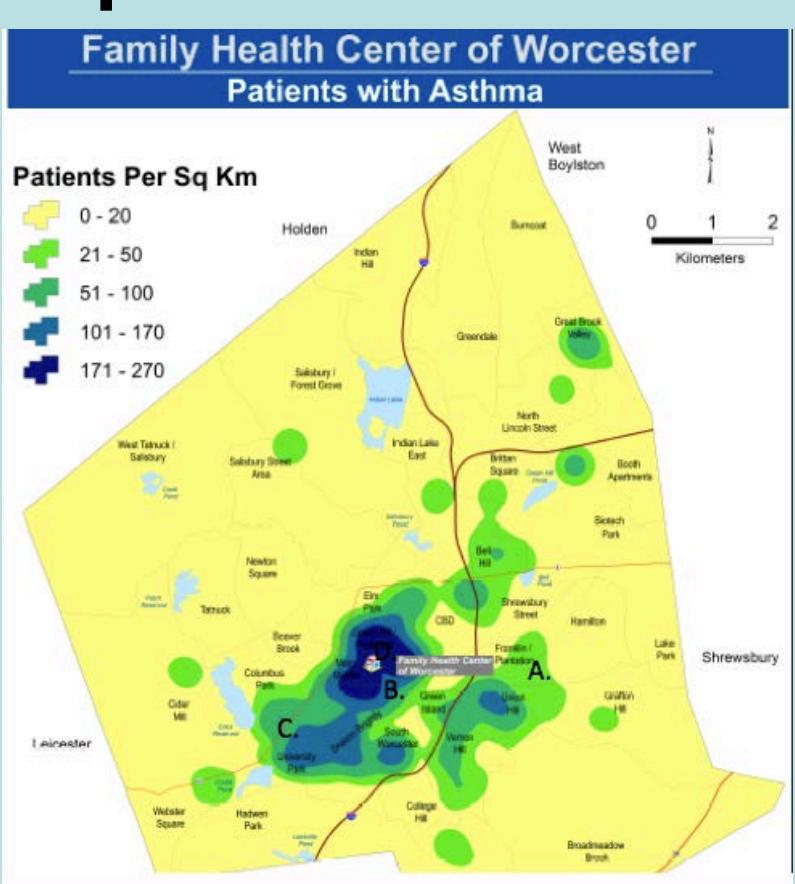
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Introduction

Asthma is one of the most common lung diseases in America, afflicting 25 million people and cost the healthcare industry \$56 billion dollars in 2007. We know now that asthma is a multifactorial disease, one whose pathogenesis can be described as a two-stage process. The early reaction is mast cell mediated bronchoconstriction, and late reaction is an inflammatory process involving eosinophils. Classification of asthma is based on frequency and severity of attacks. Proper treatment and control of persistent asthma relies on a dual course of bronchodilators and anti-inflammatories, usually in the form of inhaled corticosteroids. This dual course is necessary to keep asthma under control and avoid frequent attacks. The purpose of this survey is to assess the knowledge of the persistent asthma patients of the Family Health Center of Worcester about their treatment plans and educate them on proper treatment if need be.

Population of Focus



Patients of Family Health Center

- Over 31,000 served in 2013
- 97.5% patients have income below 200% poverty
- 37 different languages served
- 425 homeless patients

Methods

Design

The Asthma Education Trial is a randomized survey that was conducted in the outpatient clinic of Worcester Family Health Center in Worcester, MA. Between October 23, 2014 and October 28, 2014, patients that came to the office with a diagnosis of asthma were randomly selected to be placed in one of two trial arms.

Subjects

- Patients of Worcester Family Health Center
- Diagnosis of asthma and/or identified as using a controller medication

Interventions

- All subjects were screened using a pre-test to assess their understanding of the controller and rescue medications that have been prescribed to them.
- Subjects scoring a 3 on the pretest were not given the intervention, nor were they given the post-test.
- Subjects assigned to the text-based intervention were given a 1-page sheet of information, written in grade-school language, that describes the differences between controller medications and rescue medications, and why they are both used.
- Subjects assigned to the picture-based intervention were given a 1-page sheet of information that uses cartoon images to describe the effects of controller and rescue medications on asthma.
- Researchers in both intervention arms explained the material to the patient and provided verbal education regarding the differences between controller and rescue medications, and why they are both used.

Context: Asthma is one of the most common lung diseases in America, afflicting 25 million people and cost the healthcare industry \$56 billion dollars in 2007. Proper treatment and control of persistent asthma relies on a dual course of bronchodilators and anti-inflammatories. The purpose of this study is to assess the knowledge of asthma patients regarding their medications.

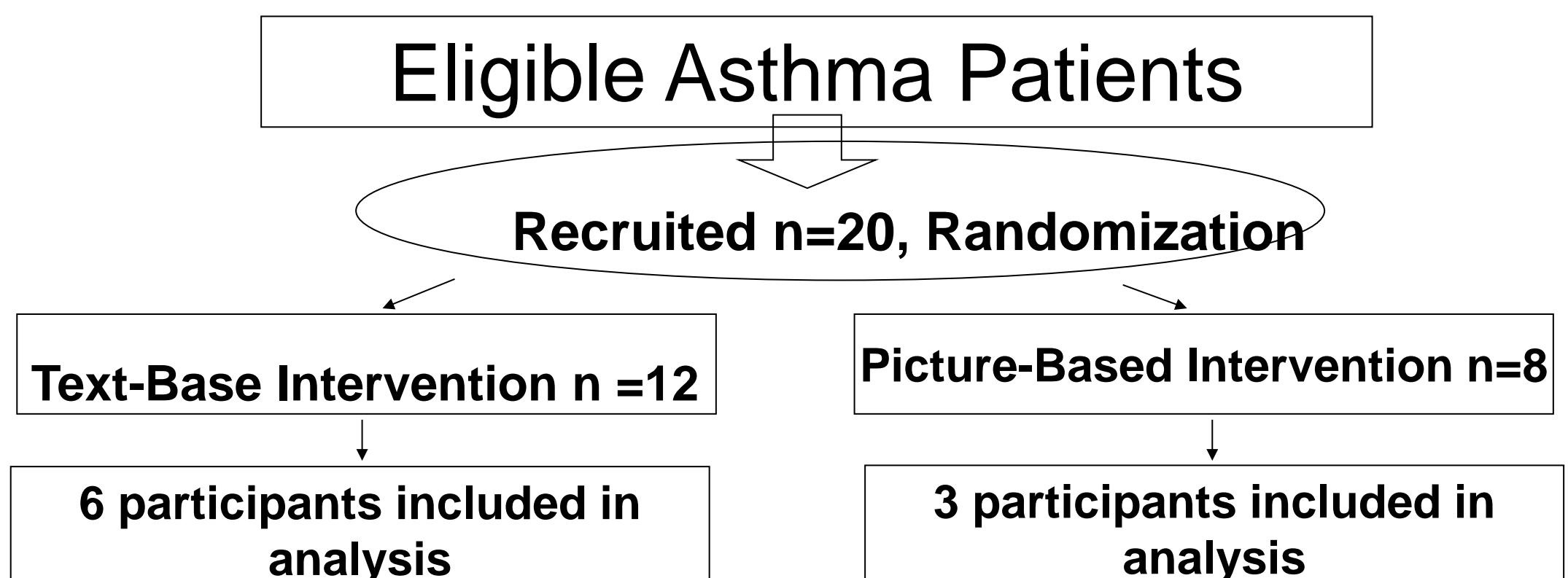
Objective: To investigate the effectiveness of asthma medication education by healthcare staff on patient's understanding of their prescribed controller and rescue medications.

Design, Setting and Patients: Two-arm, randomized trial, (October 2014) involving 20 patients in the outpatient units of Worcester Family Health Center.

Interventions: Text-based and picture-based education materials that explained controller and rescue asthma medication. In both groups the subjects were given a verbal explanation of asthma medications and why dual treatments are necessary.

Main Outcome Measures:

- An increase in the understanding of prescribed asthma medications.
- Picture intervention had a better outcome



Interprofessional Network

This project was executed by the combined efforts of 2nd year UMass graduate nursing and medical students, 3rd year pharmacy students from MCPHS in collaboration with physicians, nurse practitioners, nurses and medical assistants of Family Health Center, Worcester.

Acknowledgements

We would like to express our thanks and gratitude towards Dr. Lisa Carter, Dr. Matthew Silva, and the staff of Family Health Center of Worcester.

Results

Figure 1. Pre- Post-test scores

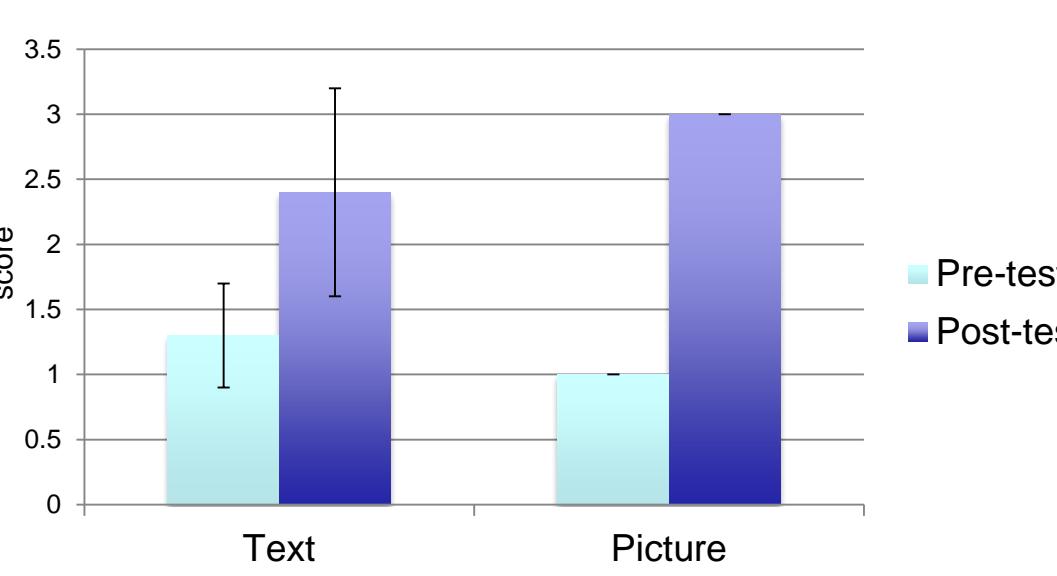


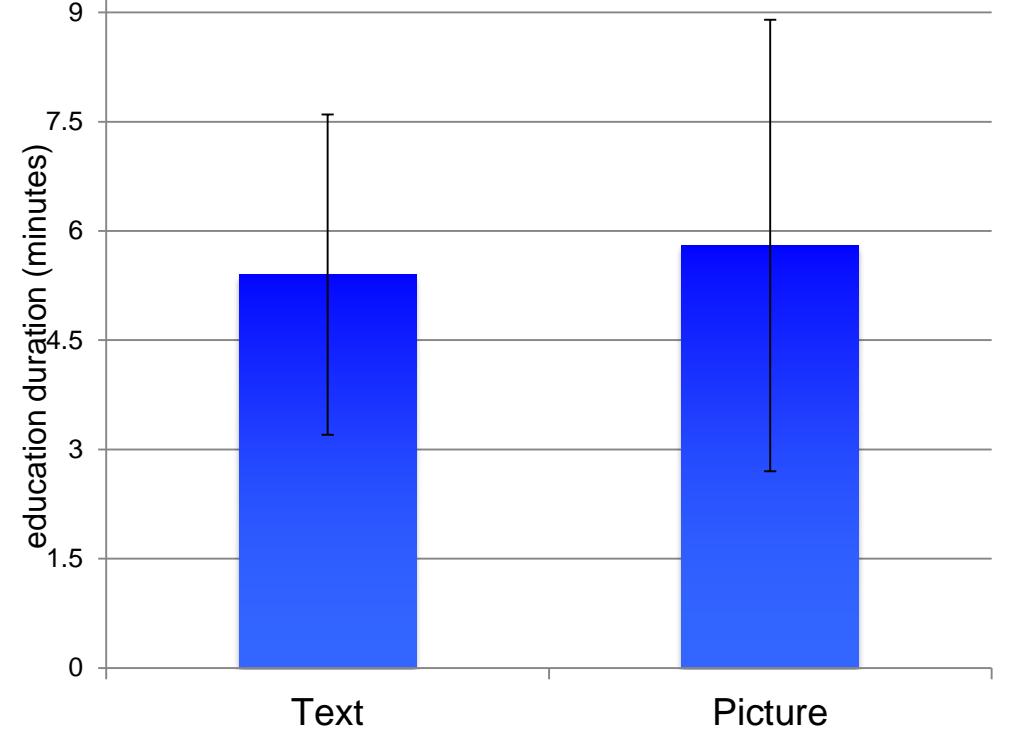
Table 1. Baseline characteristics of asthma patients

Characteristic	Mean \pm Std
N	20
Pretest Score	2.2 \pm 0.9
Posttest Score	2.6 \pm 0.7
Language	
Arabic	1
English	15
Portuguese	1
Spanish	3
Education duration by method	3
Text	5.4 \pm 2.2
Picture	5.8 \pm 3.1

Table 2. Pre-test Post-test score

Characteristic	Mean \pm Std	P value
Pre-test score by method		
Text	1.3 \pm 0.4	
Picture	1 \pm 0	
Post-test score by method		
Text	2.4 \pm 0.8	
Picture	3 \pm 0	
Pre-post difference by method		
Text	1.1 \pm 0.3	0.010
Picture	2 \pm 0	---

Figure 2. education duration by method



- 11 individuals did not receive a post-test because they scored 3 on their pre-tests.
- 9 individuals completed both pre- and post-tests.
- Patient who received picture form of education scored 2 points higher on their post-test.
- Patients who received the text form of education scored 1.1 points higher on their post-test, which was significant (P=0.010).
- On average, patient education using picture handout took 5.8 minutes. Patient education using text handout took 5.4 minutes.

Discussion

Conclusions:

- 55% of subjects already had a good understanding of their prescribed asthma medication
- 89% of subjects that met the criteria for intervention showed improvement in their understanding

Limitations of this study:

- Sample size was small
- This study only measured immediate recall, not long-term knowledge or improved medication adherence
- Observer bias and subjective scoring, non-standardized teaching
- Selection bias (convenience sample)

Implications for further research:

- A longer study with greater, and more representative sample size
- Would be useful to track clinical outcomes
- With larger sample size, subgroup analyses could be performed (age, language, education, etc.)
- Improved teaching tools (color pictures of medications, matching content between text and picture material)

Reference

Ferguson, W. *Pediatric Asthma Data: What we know and don't know*. (2014 October). Presentation at Family Health Center, Family Health Center of Worcester, Quick facts (2013), Retrieved from Family Health Center