



Research Brief

# Behavioral influences on prescription inhaler acquisition for persistent asthma in a patient-centered medical home

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## Abstract

**Background:** Medication adherence can be said to begin with the patient acquiring, or picking up their prescribed medications. There has been considerable study of asthma patients' adherence beliefs once they have possessed medication; however, little is known about attitudes that facilitate or impede their acquisition of such medication.

**Objectives:** The purpose of this study was to examine the behavioral influences, motivation, and self-efficacy that may guide a patient's decision to pick up asthma controller medications from the pharmacy for the treatment of persistent asthma.

**Methods:** A chart review of patients with an asthma diagnosis treated at an academic family medicine practice identified 582 English-speaking adults prescribed an asthma medication. Participants were contacted in a randomized order via telephone and asked to complete an investigator-developed survey based upon the Theory of Planned Behavior. Descriptive statistics, chi square and *t*-tests were used for data analysis.

**Results:** 240 individuals were contacted, and 27 individuals consented and completed a survey. Eighteen individuals (67%) were prescribed a controller inhaler in the past year, fourteen of whom picked up their prescription from the pharmacy. Individuals who did not pick up their prescription reported more strongly than those who did that using their inhaler is important ( $P = 0.01$ ). No other statistically significant differences were identified.

**Conclusion:** Use of an inhaler is important to the patient based upon survey results; however, this belief did not correlate with adherence. Future studies that investigate patient-specific motivators would allow practitioners to better target clinical interventions to improve medication adherence in patients with asthma.

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## Introduction

In 2010, asthma affected 18.7 million adults in the U.S., and its prevalence has increased by 15% over the past 10 years. Between 2006 and 2010, 50% of adults with asthma had uncontrolled symptoms, resulting in increased hospitalizations, emergency department visits, and missed days of work and school.<sup>1</sup> To decrease the incidence of hospitalizations, treatment guidelines focus on achieving asthma control.

Current treatment guidelines for persistent asthma recommend adherence to daily controller medications. Poor adherence to medications has been identified as a key factor in poor disease management.<sup>2,3</sup> Barriers to medication adherence in adults with asthma have been found to include: cost of asthma medications, cost to be seen by a primary care doctor or asthma specialist, socioeconomic status, and illness perceptions.<sup>4–8</sup> Previous studies have shown that adherence to medications in asthma improves with stronger belief in the necessity of chronic treatment and with perception of disease severity.<sup>9</sup> Psychosocial influences of a patient's self-efficacy and self-management of asthma have been shown to affect perception of symptoms, general health-related behaviors, and beliefs regarding asthma.<sup>8</sup> The Theory of Planned Behavior was utilized as a framework in this study to understand how disease perception and beliefs may affect behavior.

The Theory of Planned Behavior includes key variables that serve as the foundation for an individual's intention, ultimately resulting in a behavior. Behavioral beliefs and attitude toward the behavior are the variables that link a behavior and expected outcome. Normative beliefs and subjective norms describe the perceived social pressure to engage or not engage in a behavior. Control beliefs and perceived behavioral control describe an individual's perceived ability to perform a behavior.<sup>10</sup>

As adherence to medications is dependent upon picking up prescribed medications from the pharmacy, factors that affect filling prescriptions are of particular importance. Utilizing the Theory of Planned Behavior in the context of asthma management, the psychosocial factors that may influence whether an individual picks up a prescription for asthma were explored in this study.

## Study objective

The purpose of this study was to examine the behavioral influences, motivation, and self-efficacy that may guide a patient's decision to pick up asthma controller medications from the pharmacy for the treatment of persistent asthma.

## Methods

The University of Maryland institutional review board (IRB) approved this study. Patients with an asthma diagnosis treated at one academic family medicine practice between 1/1/2013 and 2/28/2014 were identified based upon International Classification of Diseases, 9th Edition, Clinical Modification (ICD-9-CM) billing codes. A subsequent chart review was then conducted that identified 582 English-speaking adults aged 18–65 years prescribed an asthma medication. Patients were contacted in randomized order via telephone and asked to complete a survey. The investigator attempted to contact patients throughout the duration of the study, from April 2014 through August 2014.

The investigator-developed survey was based upon The Theory of Planned Behavior. The survey addressed each key variable within the context of asthma controller medications and management of persistent asthma. Open-ended questions addressed basic demographic information as well as which medication(s) the participant was prescribed for asthma. A 5-point, Likert-type scale questions addressed behavioral beliefs, attitude toward the behavior, normative beliefs and subjective norms. A score of 1 was defined as indicating an attitude or behavior that may decrease adherence to asthma medications, and a score of 5 was defined as indicating an attitude or behavior that may increase adherence to asthma medications.

Behavioral beliefs and attitude toward the behavior were measured by questions such as “on a scale of 1–5, using my controller inhaler will: 1 = worsen my overall health, 3 = not change my overall health, 5 = improve my overall health.”

Normative beliefs and subjective norms were measured by questions such as “on a scale from 1 to 5, how do you feel you are judged by your friends and/or family for using your controller inhaler?: 1 = negatively, 3 = neither positively or negatively, 5 = positively.” Questions in checklist

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