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Research Brief

Barriers to medication use in rural underserved patients with asthma

Henry N. Young, Ph.D.[a,*], Shada Kanchanasuwan, Pharm.D.[a], Elizabeth D. Cox, M.D., Ph.D.[b], Megan M. Moreno, M.D., M.S.Ed., M.P.H.[c,d], Nadra S. Havican, R.N., BCPS[e]

[a]*Department of Clinical and Administrative Pharmacy, University of Georgia, Athens, GA, USA*
[b]*Department of Pediatrics, University of Wisconsin School of Medicine and Public Health, Madison, WI, USA*
[c]*Seattle Children's Research Institute, Seattle, WA, USA*
[d]*Department of Pediatrics, University of Washington, Seattle, WA, USA*
[e]*Family Health Center Pharmacy of Marshfield, Inc., Marshfield, WI, USA*

Abstract

Background: Asthma control is especially challenging for underserved populations. Medication use is critical to asthma control, but patients with asthma can experience barriers to using these medications.
Objectives: To assess the nature, frequency and impact of barriers to medication use in rural underserved patients with asthma.
Methods: A retrospective review of documentation from pharmacists' initial consultations with asthma patients was conducted. Pharmacist classified barriers in the following categories: knowledge, beliefs and practical issues. The Asthma Control Test (ACT) was used to assess disease control. Descriptive statistics and multivariate analyses were conducted.
Results: Documentation from 46 consultations were examined. Eighteen participants (39%) had knowledge barriers, 18 (39%) had belief barriers and 16 (35%) had practical barriers. In bivariate analyses, only belief barriers were related to significantly worse asthma control ($t = 1.83$, $P = 0.04$). Adjusted analyses found that participants with both belief and practical barriers had significantly worse asthma control ($\beta = -3.44$, $P = 0.03$) in comparison to others without both barriers.
Conclusions: Barriers around medications beliefs were frequent and associated with worse asthma control. Programs that identify and tailor interventions to address these patient-specific barriers may improve outcomes in rural underserved patients with asthma.

Keywords: Asthma; Medication use; Rural; Underserved

* Corresponding author. UGA Clinical and Administrative Pharmacy, Robert C. Wilson Pharmacy, 250 W. Green Street, Rm 270-J, Athens, GA 30602, USA. Tel.: +1 706 542 0720; fax: +1 706 542 5228.
E-mail address: hnyoung@uga.edu (H.N. Young).

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Introduction

Asthma affects approximately 25 million people in the US and is associated with morbidity and mortality, as well as poor quality of life.[1–3] Although the prevalence of asthma is increasing at similar rates in urban and rural US populations, asthma care is problematic for rural and low-income residents.[1,4,5] Self-management, including the use of medication, plays an important role in the control of asthma.[6] Rescue and long-term controller asthma medications prevent exacerbations and help patients achieve asthma control and improve quality of life.[7]

Patients face barriers that hinder the safe and effective use of asthma medications, resulting in the common problem of poor adherence.[8,9] The occurrence of barriers can vary from patient to patient and can be particularly burdensome in chronic disease management.[10] Previous literature illustrates that barriers can include lack of knowledge, asthma-related beliefs and practical issues such as costs.[7] Researchers have examined the relationships between barriers encountered by vulnerable inner-city/urban populations and adherence to asthma medication regimens. For example, Apter et al found that less knowledge regarding inhaled steroids was associated with non-adherence.[11] Sofianou et al found that illness and treatment beliefs influenced adherence to asthma controller medication in older asthmatics living in New York and Chicago.[12] Additionally, Halm et al found that an acute disease belief (i.e., "I only have asthma when I am having symptoms") was associated with poor adherence to asthma controller medications in low-income New Yorkers with asthma.[13]

Less is known about barriers that affect specific at-risk patients such as low-income patients in rural areas.[13] Moreover, scant research has examined whether patients encounter multiple asthma self-management barriers at once or whether specific barriers are associated with asthma outcomes.[14] This study assesses low-income rural asthmatics' barriers to adherence and how those barriers are associated with asthma control. It was hypothesized that individuals who experience barriers, particularly those with multiple barriers, will have worse asthma control than individuals who do not experience those barriers.

Methods

As part of a larger study, a retrospective review of the electronic documentation from pharmacists' first telephone consultations with patients who received their asthma medications from the Family Health Center of Marshfield Inc.'s (FHC) 340B mail-order pharmacy was conducted.[15] The FHC is a federally funded community health center that partners with a rural Wisconsin clinic to provide services to low-income patients (individuals living at or below 200% of the federal poverty level) who reside in medically underserved and/or health professional shortage areas. The FHC's service area includes 14 counties. The FHC is based in a non-Metro county as designated by the Office of Rural Health Policy (Health Resources and Services Administration).[16]

Potential study participants were identified from electronic health records (medical and pharmacy). Patients were included if they were English-speaking, 19 years of age and older, and had a confirmed asthma diagnosis. Because the study focused on barriers to asthma medication use, patients who 1) had a medication possession ratio of less than 80% or over 120% for long-term controller asthma medications across a 6-month period or 2) received ≥ 3 acute or rescue asthma inhalers within a 3-month period were selected as the pool of potential study participants.

Research assistants mailed letters to prospective participants to introduce the study. Within a week of the mailings, research assistants called prospective participants to determine their willingness to enroll in the study. If an individual was willing to participate, then the research assistant obtained oral consent and conducted a baseline survey to obtain demographic information (age, gender, marital status, race/ethnicity, education, and smoking status). The Marshfield Clinic Research Foundation Institutional Review Board and the Health Sciences Institutional Review Board at the University of Wisconsin–Madison approved this study.

Study pharmacists used a standardized communication tool consisting of open-ended and probing questions to identify participants' barriers associated with the use of asthma medications during the consultations. Pharmacists electronically documented barriers that arose during the consultations. During the consultation, pharmacists classified the barriers in the following three categories: knowledge (e.g., misconceptions about drug purpose, doses, duration, routine, and technique), beliefs (e.g., low self-efficacy, doubt benefit, fear of long-term effects, and stigma) and practical (e.g., difficulty taking multiple drugs, administration, recall, tolerance/side effects, payment). The Asthma Control Test