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Disability and Health Journal 9 (2016) 646–654

Disability and Health Journal

www.disabilityandhealthjnl.com

Research Paper

Asthma and asthma-related health care utilization among people without disabilities and people with physical disabilities

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Abstract

Background: Previous research has shown that people with disabilities have higher rates of some chronic diseases and receive poorer disease-specific care than their counterparts without disabilities. Yet, little is known about the relationship between asthma and disability.

Objective: This study examines whether differences in the prevalence of asthma, asthma flare, and asthma-related measures of health care quality, utilization and cost exist among people with physical limitations (PL) and without any limitations.

Methods: Data from the 2004–2010 Medical Expenditure Panel Survey were pooled to compare outcomes for working-age adults (18–64) with PL to those with no limitations.

Results: People with PL had higher rates of asthma (13.8% vs. 5.9%, $p < 0.001$) and recent asthma flare (52.6% vs. 39.6%, $p < 0.001$) than people without limitations. There were no differences in health care quality, utilization or cost between people with PL and people without limitations in multivariate analyses.

Conclusions: Although there are no differences in asthma-related quality or utilization of health care, people with PL have poorer asthma control than people without limitations. Research is needed to determine what factors (e.g., focus on other acute ailments, perceptions that asthma control cannot improve) are related to this outcome. Future research must also examine differences in asthma severity, and its impact on asthma control and health care-related outcomes, among people with and without disabilities.

Keywords: Persons with disabilities; Physical limitations; Asthma; Health care quality; Health care utilization

Asthma is a significant health problem affecting 18.9 million adults[1] and 7.1 million children[2] in the US, annually resulting in 1.8 million emergency department (ED) visits,[3] 439,000 hospitalization,[4] and 3404 deaths.[5] The associated economic and social costs of asthma care and management[6–14] have received significant attention by public health initiatives over the last two decades. For example, asthma has been declared a priority health condition by several federal health agencies, including the Agency for Healthcare Research and Quality (AHRQ)[15] and the Centers for Disease Control and Prevention.[16]

At the same time, public health initiatives, such as Healthy People (HP) 2010 and 2020,[17,18] elevated people with disabilities to a priority population due to the health disparities they face relative to people without disabilities.[19,20] Compared to the general population, people with disabilities commonly experience higher prevalence of secondary conditions, such as fatigue and pain,[21–25] as well as chronic conditions, such as diabetes and heart diseases.[21,26–31] Research has also shown that people with disabilities report lower rates of preventive care and health

Presentations: The results of this project were presented at the 2014 American Public Health Association Annual Meeting.

Grant funding: The contents of this manuscript were developed by the Disability and Rehabilitation Research Project: Health and Healthcare Disparities among Individuals with Disabilities Project (Health Disparities Project), under a grant from the U.S. Department of Education, National Institute on Disability, Independent Living, and Rehabilitation Research (formerly the National Institute on Disability and Rehabilitation Research), grant #H133A100031. The contents do not necessarily represent the policy of the U.S. Department of Education and you should not assume endorsement by the Federal Government. NIDRR had no role in the study design, data collection or analysis, or in the interpretation of findings, and development of this manuscript. No other disclosures.

Conflict of interest statement: The authors have no conflicts of interest to disclose.

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1936-6574/$ - see front matter © 2016 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.dhjo.2016.05.003

promotion,[32–38] as well as more delays in receipt of needed medical care[32,39] than people without disabilities.

The relationship between asthma and disability is not well understood, because the populations of people with asthma and disabilities overlap, although they are conceptually distinct.[40,41] Some people with asthma are disabled due to their asthma; others have asthma but are disabled by entirely separate conditions. Previous studies report inconsistent findings regarding prevalence of asthma among people with disabilities compared to people without disabilities. Higher asthma prevalence among people with an activity limitation or who use special equipment was found in state-based samples[23,26] and among individuals with physical or cognitive limitations in a nationally representative sample,[42] compared to non-disabled peers. However, studies using community-based samples found no significant differences between people with sensory, developmental, trauma, and psychiatric disabilities and people without disabilities.[27,28] Reichard et al[42] found that people with physical limitations (PL) report significantly higher rates of asthma than people with cognitive limitations, demonstrating that public health efforts should consider differences in health and health care according to disability type.[43] The few studies cited here have been unable to explicate the relationship between asthma severity and disability because of the lack of available items.

Further, little research has examined the quality of asthma care among individuals with disabilities. Health care quality, and its improvement, has become a key focus of the health care system,[44,45] with the goal of reducing health care costs and unnecessary inpatient and ED events while improving quality of life.[46] In fact, a number of disease-specific quality measures have been developed, including some related to asthma.[47] Studies that have examined the confluence of disability and disease have shown that, despite higher rates of chronic disease, people with disabilities often receive poorer disease-related quality of care.[31,48] Similarly, few studies have examined health care utilization and cost-of-illness for asthma among people with disabilities. HP 2020 includes items with the intention of reducing hospital stays and ED visits related to asthma. In their systematic review, Bahadori et al[49] report that people with comorbid conditions and poorer overall health have higher total asthma-related health care costs than their healthier peers.

Accordingly, the purpose of this study was to examine prevalence of asthma and recent asthma flare, care quality measures, and asthma-related health care utilization and cost among a nationally representative sample of working-age adults, comparing those with PL to those without any disabilities. We did not attempt to disentangle the complex causal relationship between asthma and disability because of our reliance on cross-sectional data. In doing so, we used a narrow definition of disability, focusing on only one type of limitation at a single point in time. People with different types of limitations have unique characteristics and health care needs[43] and it is important to determine whether asthma, and other health conditions and needs differ across disability subtypes. Here, we only examined people with PL because other disability subgroups were represented by sample sizes too small to be analyzed. Similar to previous research, we are unable to assess the potential confounding impact of asthma severity on the relationship between disability and asthma-related health care outcomes because our data does not include such a measure.

Methods

The Medical Expenditures Panel Survey (MEPS) collects health, disability, and health care utilization information on a nationally representative sample of the non-institutionalized civilian US population through a randomly selected subsample of the National Health Interview Survey.[50] Data from the 2004–2010 Household Component, Self-Administered Questionnaire (SAQ), and medical conditions and events files were pooled to achieve a sample of sufficient size for examining small analytic groups. Unless noted, measures were derived from the Household Component. The MEPS data are publicly available and, therefore, exempt from Institutional Review Board approval by our University.[51]

The analytic sample (n = 114,950) included working-age adults (age 18–64) who reported a PL or no limitation. Respondents with emphysema were excluded because asthma treatments differ when emphysema co-occurs with asthma.[52] The subsample (n = 7354) included those who self-reported a diagnosis of asthma and were eligible to participate in MEPS for the entire year to obtain comparable counts of health care utilization.

Measures

Physical Limitations (PL)

Working-age adults were coded as having PL if they reported having "difficulties walking, climbing stairs, grasping objects, reaching overhead, lifting, bending or stooping, or standing for long periods of time" at least one time during the calendar year.[50] Respondents were categorized as having a cognitive limitation if they reported "confusion or memory loss" or "problems making decisions" to the point that "it interferes with daily activities" at two points in time during the calendar year.[50] Working-age adults were categorized as having vision limitations if they reported being visually impaired near (but not far), both near and far, or blind. Respondents were coded as being deaf or hard of hearing if they reported having a moderate or major hearing difficulty or were deaf. Working-age adults who reported no physical, visual, hearing, or cognitive difficulties were categorized as having no limitations.

Asthma and asthma flare

Working-age adults were coded as currently having asthma if they reported ever having received a diagnosis of asthma and reported still having asthma[50]; all others