Patient Reported Value and Usability of a Digital Health Intervention for Asthma

Rajan Merchant¹, MD; Rubina Inamdar², MD; Kelly Henderson³*, MPH; Meredith Barrett³*, PhD; David Van Sickle⁴*, PhD

¹Woodland Clinic Medical Group, Dignity Health, Sacramento, CA, United States
²Mercy Medical Group, Dignity Health, Sacramento, CA, United States
³Propeller Health, San Francisco, CA, United States
⁴Propeller Health, Madison, WI, United States
*these authors contributed equally

Corresponding Author:
Kelly Henderson, MPH
Propeller Health
929 Market Street, Suite 400
San Francisco, CA, 94103
United States
Phone: 1 240 418 3990
Fax: 1 844 411 7475
Email: kelly.henderson@propellerhealth.com

Abstract

Background: Digital health tools are increasingly recognized as effective in improving asthma clinical outcomes such as control and adherence; however, few studies have evaluated patient perspectives on the usability and value of these tools in supporting asthma self-management. Patient perceptions of digital health tools, including usability and satisfaction, will determine the success of these digital health interventions and the durability of their effects.

Objective: We aimed to assess patients’ usability feedback and satisfaction with an asthma digital health platform after 12 months of use.

Methods: We administered surveys to participants of a randomized controlled clinical study designed to measure the clinical effectiveness of the Propeller Health Asthma Platform. The electronic surveys evaluated patients’ feedback on the usability of the sensor and the perceived value of the platform and information provided after 12 months of use. The clinical study had enrolled patients (N=495) in parallel arms from specialty and primary care clinics. Intervention group patients (n=250) used electronic inhaler sensors to track the date, time and geographic location of medication use. Patients received access to a digital health platform including smartphone and Web-based applications that provided information about their asthma medication use trends, real-time asthma control, guidelines-based education, and personalized support for 12 months. Physicians could monitor the status of their patients and receive notifications about short-acting beta agonist (SABA) overuse. Survey results reported here represent adult participants from the intervention group who completed the exit survey at 12 months.

Results: Respondents (n=89) reported being very satisfied (79%) or somewhat satisfied (20%) with the inhaler sensor, stating that the sensor was “small,” “unobtrusive,” and “easy to use” and carry. A total of 90% of respondents found the information they received via the platform useful, with 93% expressing satisfaction with the information. In open-ended responses, participants cited valuing how the platform increased awareness about their asthma control status and medication use, provided “relevant” and “timely” information, and identified potential environmental triggers that exacerbated their symptoms, with 65% of respondents identifying 1-7 new triggers as result of the information. Respondents described improved communication with their doctors: 46% of the respondents had talked with their doctor about the information they received, and 22% stated that their doctor recommended or changed a specific aspect of their asthma management as a result of the information. Over 50% of respondents said that they felt their asthma was more controlled as a result of the information they received, which is supported by the clinical results demonstrating 63% of uncontrolled patients achieved control during the program.

Conclusions: Patients reported positive usability of a digital health platform for asthma self-management, citing that it was easy to use and fit into their lives unobtrusively. Almost all patients perceived value from the digital health platform in contributing...
to their self-management, finding value in increasing self-awareness, identifying asthma triggers, offering actionable information, and improving communication with their doctors.


(iproc 2016;2(1):e36) doi: 10.2196/iproc.6242

KEYWORDS
asthma; digital health; usability

This poster was presented at the Connected Health Symposium 2016, October 20-21, Boston, MA, United States. The poster is displayed as an image in Figure 1 and as a higher resolution image in Multimedia Appendix 1.

Figure 1. Poster.

PATIENT REPORTED VALUE AND USABILITY OF A DIGITAL HEALTH INTERVENTION FOR ASTHMA

BACKGROUND
Trends in the behavior of patients with chronic conditions support the importance of improving outcomes, reducing costs, and increasing self-management. Digital health interventions enable patients to self-monitor, identify triggers, and understand the link between actions and outcomes.

OBJECTIVES
New research suggests that digital health interventions can be effective in improving the outcomes of chronic conditions. The current study aimed to evaluate the usability and self-management of an asthma-specific digital health intervention.

METHODS
Participants were enrolled in a randomized clinical study assessing the clinical outcomes of a digital health platform in a real-world setting. The study included participants with asthma who were randomly assigned to receive the intervention or control group. The intervention group received feedback about their asthma management via a mobile app.

RESULTS
The intervention group participants reported an increase in self-management, finding value in increased self-awareness, identifying triggers, and improving communication with their doctors.

CONCLUSIONS
The intervention demonstrated improvements in self-management, self-awareness, and communication. Participants reported increased satisfaction with their asthma management. Further research is needed to evaluate the long-term effectiveness of digital health interventions in asthma management.

KEYWORDS:
asthma; digital health; usability

Edited by T Hale; submitted 20.06.16; peer-reviewed by CHS Scientific Program Committee; accepted 02.08.16; published 30.12.16

Please cite as:

©Rajan Merchant, Rubina Inamdar, Kelly Henderson, Meredith Barrett, David Van Sickle. Originally published in Iproceedings (http://www.iproc.org), 30.12.2016. This is an open-access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work, first published in Iproceedings, is properly cited. The complete bibliographic information, a link to the original publication on http://www.iproc.org/, as well as this copyright and license information must be included.