Web app based patient education in psoriasis – a randomized controlled trial

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Abstract

Purpose: Patients report wanting more information about psoriasis and clear expectations from the onset of therapy. Dermatologists do not think patients receive or internalize adequate information. There is a need for further explanation of treatment regimens to increase knowledge, compliance, and patient satisfaction. Recent advancements in web technology have the potential to improve these psoriasis outcomes.

Methods: A web based application was created to educate psoriasis patients using video, graphics, and textual information. An investigator blinded, randomized, controlled study evaluated the website's efficacy in 50 psoriasis patients at Wake Forest Baptist Health Dermatology. Patients were randomized into two groups: Group 1 received a link to the educational web app and a survey following their visit; Group 2 received a link to the survey with no educational web app. The survey assessed patient knowledge, self-reported adherence to medication, and adequacy of addressing concerns. Twenty two patients completed the study.

Results: Patients in the web app group scored an average of 11/14 on the psoriasis knowledge quiz, whereas patients in the control group scored an average of 9/14 for an improvement of roughly 18% (p=0.008, n=22).

Conclusion: Web app based education via DermPatientEd.Com is an efficient way to improve knowledge, but we did not demonstrate improvements in self-reported medication adherence or the ability to address concerns of psoriasis patients.

Keywords: psoriasis, web, patient, education, DermPatientEd, video

Introduction

Psoriasis is a chronic inflammatory skin disease, which typically requires long-term treatments. Unfortunately, patient education remains a challenge and equally long-held notions about the need to use thick, greasy corticosteroid creams contribute to frustration among many dermatologists and patients. Patients report they want more information on psoriasis and clear expectations from the onset of therapy. Dermatologists do not think patients receive or internalize adequate information. Further explanation of treatment regimens is necessary to increase compliance and patient satisfaction [1].

Current patient education in psoriasis often relies on physician-patient verbal communication as well as printed post-visit summaries. With the near universal adoption of internet connectivity, patients are no longer strictly limited to verbal orders and physician pamphlets. Although resources are available online, studies have shown that most of the existing psoriasis educational materials are written above the guideline recommended 6th grade level [2]. In response to the JAMA Dermatology review of current mobile and web apps in dermatology, Dr. Bhatia wrote a commentary identifying the underuse of apps as a practice gap, "If dermatologists have the ability to answer point-of-care questions or deliver higher-quality patient care more efficiently and effectively by using an app in the office, but do not use such tools for these purposes, this would qualify as a practice gap" [3]. Physicians must find a way to take advantage of the vast educational opportunities provided by the internet through methods that can be easily comprehended by all.

Feldman and colleagues have shown that psoriasis outcomes can be improved by recognizing the impact of psoriasis on quality of life, educating

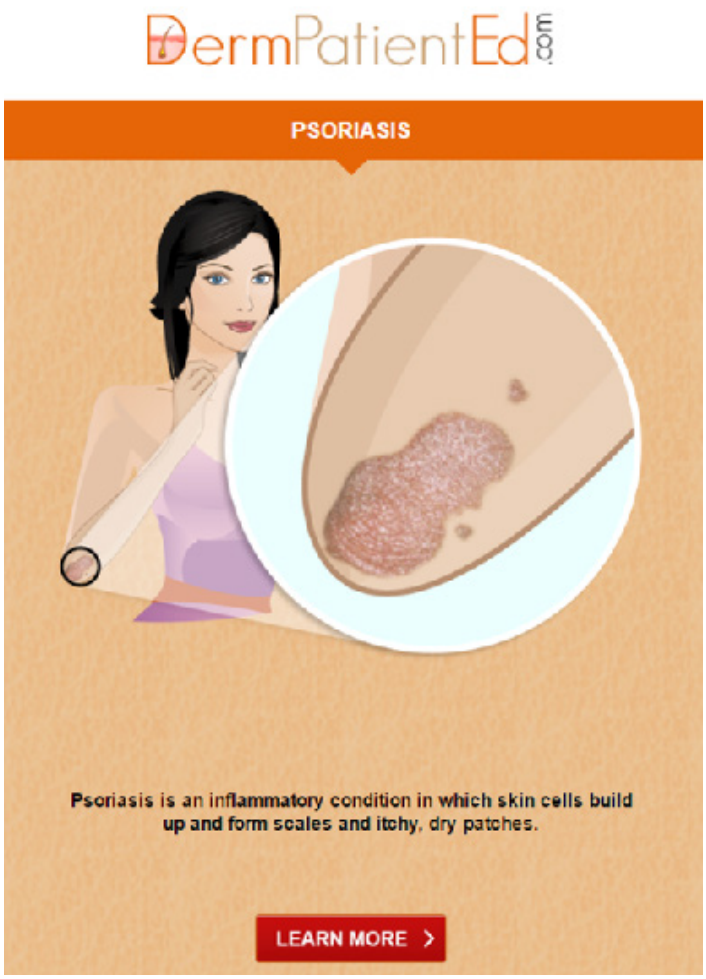

Figure 1. *Screenshot of DermPatientEd.com.*

patients about their disease and available treatment options, recognizing that adherence to treatment is a critical issue, and by ultimately finding a treatment the patient will use [4]. With this new paradigm in mind, recent advancements in mobile technology have emerged with the potential to improve psoriasis outcomes. The primary objective of this study was to create and evaluate the efficacy of a web based application to educate psoriasis patients using videos, digital graphics, and textual information.

Methods

Study design and population

This investigator-blinded, randomized, controlled study was approved by the Institutional Review Board (IRB) of Wake Forest Baptist Health (WFBH, IRB Number: IRB00034499, Date Approved: 10/14/2015). Fifty participants were recruited from the Wake Forest Baptist Health Dermatology clinic from January 2016 to May 2016. Patients had to be over age 18, have a diagnosis of psoriasis, and attend all study visits. Patients were excluded if they had limited access to the internet or if treatment was not indicated.

Study materials

A new module was created on the dermatology patient education website, DermPatientEd.com, to display an educational video about psoriasis, text-based information, and graphics about side effects (**Figure 1**). The psoriasis video was licensed from another patient education website (swarminteractive.com). The URL to the web app is http://www.DermPatientEd.com/psoriasis

Study procedures

Upon arrival to the dermatologic clinic a research fellow identified eligible patients based on daily schedules, explained the study, and delivered informed consent within the privacy of the exam room. Randomization was performed using a randomization table created prior to the study and patients were assigned to groups chronologically according to when they were enrolled. Patients were handed a paper card with a unique link depending on which group they were assigned to (**Figure 2**). The phone number of the patient was also recorded and in the event the patient failed to complete the survey within 72 hours, the patient was called and reminded to complete the survey.

Patients in group 1 received a link to the psoriasis app on DermPatientEd.com, which contained a video on psoriasis as well as other graphics and information relating to their condition, treatment options, and frequently asked questions. After browsing the education materials, they were asked to complete a short survey at the bottom of the page. The survey for patients in group 1 included questions about knowledge, adherence, and ability to address all concerns. It also contained several additional qualitative questions specifically evaluating the education materials that were not included in the group 2 survey, but the surveys were otherwise identical.

Patients in group 2 were provided a link to the survey only (including questions about knowledge, adherence, and ability to address all concerns) with no access to the educational materials.

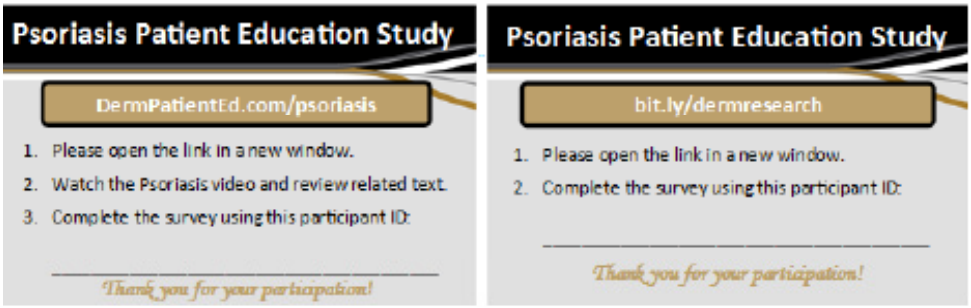

Figure 2. *Cards given to patients after the visit. Group 1 on the left, Group 2 on the right.*

Outcome measure(s)

The primary outcome of the study was the difference in psoriasis knowledge between web app groups and non-web app groups. Secondary outcomes included self-reported adherence to medication between the groups and the extent to which all concerns were addressed. We also collected qualitative comments from research staff and study participants concerning the use of web based education.

Assessment measures

Psoriasis knowledge was assessed with a survey created based on the educational information provided by the web app. Information was obtained from a variety of sources cited on the app. Patient adherence was assessed with a multiple choice question within the patient survey. The extent to which all concerns were addressed was assessed using a visual analog scale. Additional patient feedback about the website was assessed by using multiple choice questions only available to patients within the web app group. The surveys were administered using REDCap data management software.

Statistical measures

Descriptive statistics were reported. Data on all patients were analyzed on an intention to treat basis. Psoriasis knowledge scores of patients randomized to access or not access the web app were compared using a non-parametric Mann–Whitney U test. Patient knowledge was assessed with a 14 question quiz related to psoriasis and treatment options. Based on pilot data from a similar study, the standard deviation of the scores was 11%. Setting for the analyses were as follows: alpha = 0.05; beta = 0.20; the difference we wanted to see between the two groups to be 5.5% (half a standard deviation); we required 25 per group for a total of 50 patients. Medication adherence and extent to which the physician addressed all concerns were compared between groups using Fisher's exact test.

Results

Primary outcome

Patients in the web app group scored an average of 11/14 on the psoriasis knowledge quiz, whereas patients in the control group scored an average of 9/14 for an improvement of 18% (p=0.007, n=22).

Website feedback

Seven patients within the web app group completed an additional set of qualitative questions about DermPatientEd. All these patients reported the website was helpful in understanding their psoriatic condition and they were likely to return to the website for questions about psoriasis in the future. They also all reported they were more satisfied with their doctor's visit compared to a traditional doctor's visit with no patient education. Nearly all patients (6/7) reported they felt more informed about psoriasis after the educational intervention and wanted other dermatologists to use DermPatientEd or similar patient education websites in their practice.

Discussion

Patients that visited the website were more knowledgeable about psoriasis. Patients were not statistically more likely to report using their medications as directed or report they feel their physician addressed all their concerns. We suspect this may be related to our limited sample size. Patients in the web app group said the website was helpful in understanding psoriasis and they would likely return to the website. Patients in the web app group reported they felt more informed about psoriasis and were more satisfied with their visit. Furthermore, they would like other physicians to use DermPatientEd or similar education websites in the future. There were some limitations to our study. We handed out 50 paper cards with links to the website or survey (25 per group). We received 23 completed surveys, on one of which the patient entered an unrecognizable study ID, leaving 22 valid responses. This makes our survey response rate 46%.

Conclusion

Web app based education via DermPatientEd.Com is an efficient way to improve knowledge, but we were not able to demonstrate improvements in self-reported medication adherence or the ability to address concerns of psoriasis patients. This web based resource is free to use by any physician.

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