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# Online video improves clinical outcomes in adults with atopic dermatitis: A randomized controlled trial

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**Background:** Atopic dermatitis (AD) is a chronic inflammatory skin disorder characterized by intense pruritus that causes significant disease and psychosocial burden in patients. Patient education has the potential to improve clinical outcomes and patient knowledge of this condition.

**Objectives:** We sought to assess the effectiveness of online video education at improving AD knowledge and disease severity compared with a written pamphlet, and to determine the usefulness and appeal of the two educational delivery vehicles.

**Methods:** In a randomized controlled trial, 80 participants were randomized to receive either online video-based patient education or written pamphlet education about AD and its management. We assessed AD disease severity using the patient-oriented eczema measure (POEM) scale. AD knowledge was assessed with standardized questionnaires at baseline and after the 12-week intervention.

**Results:** All participants had similar baseline knowledge and AD severity at the beginning of the study. On study completion, improvements in AD knowledge assessed by questionnaire were significantly greater in the video group than the pamphlet group (3.05 vs 1.85,  $P = .011$ ). Online video-based education resulted in greater improvement in clinical outcome, as measured by POEM, compared with pamphlet-based education (POEM score reduction of 3.30 vs 1.03,  $P = .0043$ ). Finally, although the usefulness of both interventions was rated equally ( $P = .77$ ), the online video was significantly more appealing than the pamphlet ( $P = .0086$ ).

**Limitations:** This study is limited to AD in adults.

**Conclusion:** Online video for patient education is an effective and appealing tool for improving clinical outcomes in adult patients with AD. (J Am Acad Dermatol 2011;64:502-7.)

**Key words:** atopic dermatitis; patient education; POEM; randomized controlled trial; video education.

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Atopic dermatitis (AD) is a chronic pruritic inflammatory skin disorder with a lifetime prevalence of 17% in children in the United States.<sup>1</sup> In adults, AD affects 1% to 3% of the population,<sup>2</sup> and it is frequently underdiagnosed in this population.<sup>3</sup> AD has a significant impact on patients' quality of life and psychological well-being.<sup>4</sup> Patient adherence to AD treatment is poor, particularly with topical medications.<sup>5-7</sup> Furthermore, patients' lack of understanding of the disease process and management plan often contributes to poor clinical outcomes. Thus, patient education plays an increasingly important role in AD management.

The traditional approach to AD management centers on physician's selection of therapy, with little focus on patient education.<sup>8</sup> In a study reported by Cork et al,<sup>9</sup> 95% of parents of children with AD received little to no information

about the pathophysiology of AD or how to apply topical therapy properly. Thus, devising and evaluating novel patient education tools may be useful for improving clinical outcomes in AD.<sup>10</sup>

AD patient education has traditionally included workshops, programs, and practical training<sup>11</sup> that targets certain aspects of AD management, such as basic skin care and bathing practices,<sup>12</sup> choice of emollient,<sup>13</sup> and topical corticosteroid application.<sup>9,14</sup> Despite existing educational efforts, nonadherence rates of topical therapies are equivalent to or sometimes worse than oral therapies.<sup>5,15</sup> For these reasons, AD education that addresses the pathophysiology of the disease, its management, and practical demonstrations has the potential to improve clinical outcomes.<sup>11,16</sup> However, the interventions previously cited in the literature may be time-consuming and costly in clinical practice, thereby potentially limiting their widespread implementation. In this study, we created educational online videos and written pamphlets for patients with AD that are readily accessible and distributable. These educational modules address common clinical manifestations of AD, environmental triggers, proper washing technique, commonly used emollients, and topical treatment options. To determine the effectiveness of online video education in adults with AD, we compared the online videos with traditional pamphlets at improving knowledge and clinical outcomes in a randomized controlled trial.

## METHODS

### Study design and population

This randomized controlled study was approved and overseen by the Institutional Review Board of University of California, Davis in Sacramento. The [clinicaltrials.gov](https://clinicaltrials.gov) registration number is NCT00826592. All participants were recruited from patients who were seen at the dermatology clinic and given a diagnosis of AD by board-certified dermatologists. The eligibility criteria required the participants to be 18 years or older, fulfilling the criteria of Hanifin and Rajka<sup>17</sup> for AD, English-speaking, and

able to view videos online. All participants gave signed informed consent.

### Study procedures

Eighty participants were randomized in a 1:1 simple, nonstratified randomization scheme generated by randomization software (GraphPad Software, La Jolla, CA). Randomization sequences were concealed within numbered envelopes until interventions were assigned.

Participants randomized to the online video education were instructed to watch an online video on skin care for AD. These participants were given instructions on how to access the online video and asked to demonstrate that they were able to locate and view the video during the initial visit.

The online video contained education on the clinical manifestations of AD, contributing environmental factors, bathing and hand-

washing techniques, moisturizer vehicles, and common treatment modalities. The pamphlet contained *identical* information as the online video except in a written format. The Flesch-Kincaid readability score of the pamphlet was 46.06 with a reading level closest to 13- to 15-year-olds.

All participants were instructed to view the educational material at least once during the 12-week study period and were allowed to review the educational material as often as they desired after the initial viewing.

### Outcome measures

In this study, the primary outcome measure was disease severity. AD disease severity was assessed using a validated clinical outcome instrument, the patient-oriented eczema measure (POEM), at baseline and at the end of the study. The POEM questionnaire is a sensitive and validated disease severity measure for AD.<sup>18,19</sup> Subjects' responses to the POEM questionnaire were used to generate a POEM score at baseline and conclusion of the study.

Improvement in the participants' knowledge was a secondary outcome measure in this study. All participants were asked to complete a prestudy questionnaire regarding their baseline knowledge of AD and skin care for AD. This knowledge

### CAPSULE SUMMARY

- Patient education plays an increasingly important role in the management of atopic dermatitis (AD).
- In a randomized controlled trial comparing online video with written pamphlet education for adults with AD, online video showed significantly greater decreases in disease severity, showed greater increases in AD knowledge, and was more appealing than the written pamphlet.
- Online video appears to be an effective educational vehicle that is easily distributable, accessible, and appealing to patients with AD.

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