



The Use of Patient-Marketed Dermatoscopes in Dermatology Practice

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Introduction

As smartphones with high-quality cameras have become ubiquitous, and dermoscopy technology has become cheaper, new dermatoscopes designed for use by the layperson have been released. These \$125 dermatoscopes connect directly to patients' smartphones. The COVID-19 pandemic has caused a massive shift towards telehealth, including teledermatology and teledermoscopy, making these devices more relevant. There have been several studies evaluating patient-directed dermoscopy during a self-skin examination [1-3]. However, there is limited data on how patients are using these devices in the real world and whether their use is impacting dermatologic care. This survey-based project was designed to evaluate how patient-marketed dermatoscopes are being utilized.

Case Presentation

The Mayo Clinic institutional review board deemed this study exempt. A link to a survey designed in REDCap was

sent to 3Gen[®], which manufactures a patient-marketed dermatoscope, that was forwarded to customers who purchased a HUD[®] dermatoscope [4]. An initial email was sent on 12/2/2020, with a reminder email six weeks later. The REDCap and all raw data were stored at Mayo Clinic. Descriptive statistics were utilized for this study.

In total, 21 customers responded to the survey (Table 1). Females comprised 66.6% of respondents. The median age was 57 years. Caucasians made up 81% of respondents. Education levels included doctorate (38%), master (23.8%), bachelor (23.8%), associate (4.8%), and some college (9.5%). Most (two-thirds) did not work in the medical field. The devices were used on the respondents children in 23.8% of cases. Nearly all (94.7%) had seen a dermatologist, and the majority (73.7%) had heard about this device from their dermatologist. The device primary use was sending photographs to their medical provider (78.9%). These devices did not change the frequency of dermatology appointments in 83.3% of cases. Most (73.7%) patients agreed or strongly agreed that they would recommend the dermatoscope. Most

Table 1. Demographic, clinical use, and satisfaction data.

Demographics (N = 21)		
Gender	Female	66.6%
	Male	33.3%
Age	Mean (SD)	55 (19.8)
Race	Caucasian	81.0%
	Asian	4.7%
	Prefer not to say	14.3%
Clinical Use		
Do you have a dermatologist	Yes	94.7%
Has the HÜD dermatoscope changed how often you see your dermatologist?	No change in frequency	83.3%
	Less frequent	16.6%
Do you send dermoscopic photographs to your medical provider?	Yes	78.9%
	No	21.1%
How did you learn about the HÜD dermatoscope	Dermatologist / Dermatology Provider	73.7%
	Internet	15.8%
	Other	10.5%
What is the primary use of your HÜD dermatoscope	Bought to use on yourself	78.9%
	Bought to use on adult family member	10.5%
	Bought to use on child	5.3%
	Other reason	15.8%
What is the primary reason you purchased a HÜD dermatoscope	Send photographs to dermatologist / medical provider	78.9%
	Track moles yourself	15.8%
	Track moles using a phone-based application	5.3%
	Use with self-skin examinations	15.8%
Do you perform self-skin examinations	Yes	78.9%
	No	21.1%
Do you use your HÜD during self-skin examinations	Yes	40.0%
	No	60.0%
Have you received training on how to interpret dermoscopic images	Yes	26.3%
	No	73.7%
Satisfaction		
	1 = strongly disagree, 5 = strongly agree	
I would be interested in training to interpret dermoscopic images	Mean (SD)	3.8 (1.4)
	Median	4
I would be interested in incorporating the HÜD into my self-skin exam	Mean (SD)	3.5 (1.5)
	Median	3
Using new technology, including the HÜD dermatoscope, is challenging	Mean (SD)	2.6 (1.4)
	Median	2
I am satisfied with my HÜD dermatoscope	Mean (SD)	3.8 (1.2)
	Median	4
I would recommend the HÜD dermatoscope	Mean (SD)	3.9 (1.1)
	Median	4

SD = standard deviation.

(68.4%) agreed or strongly agreed that they were satisfied with the device. Most (57.9%) disagreed or strongly disagreed that new technology, including this dermatoscope,

is challenging to use. Limitations of this study include the small sample size and only one dermatoscope model was assessed.

Conclusions

A silver lining for the COVID-19 pandemic may be the increased infrastructure, access, and utilization of teledermatology. Since many institutions have online portals that allow patients to send in photographs, patients are likely sending in photos of concerning lesions.

In the appropriate patient, using patient-marketed dermatoscopes could enable the clinician to perform store-and-forward teledermatology visits. The associated expense and narrow user population could conceivably cause healthcare disparity concerns, but this likely would be offset for patients living far from health resources, those who have difficulty with transport to the clinic, and those avoiding healthcare facilities during the COVID-19 pandemic. In most cases, the use of these devices did not decrease the frequency of dermatology in-person appointments, suggesting that they serve as an adjunct for concerning lesions between visits. Overall, most patients were satisfied with the devices, would recommend them, and did not find them challenging to use. As

technology evolves, dermoscopy guided by artificial intelligence will significantly assist in-home lesion analysis.

References

1. Horsham C, Loescher LJ, Whiteman DC, Soyer HP, Janda M. Consumer acceptance of patient-performed mobile teledermoscopy for the early detection of melanoma. *Br J Dermatol*. 2016;175(6):1301-1310. DOI:10.1111/bjd.14630. PMID: 27037999.
2. Janda M, Loescher LJ, Soyer HP. Enhanced skin self-examination: a novel approach to skin cancer monitoring and follow-up. *JAMA Dermatol*. 2013;149(2):231-236. DOI: 10.1001/jamadermatol.2013.1218. PMID: 23426490.
3. Manahan MN, Soyer HP, Loescher LJ, et al. A pilot trial of mobile, patient-performed teledermoscopy. *Br J Dermatol*. 2015;172(4):1072-1080. DOI:10.1111/bjd.13550. PMID: 25418126.
4. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)--a metadata-driven methodology and workflow process for providing translational research informatics support. *Biomed Inform*. 2009 ;42(2):377-381. DOI 10.1016/j.jbi.2008.08.010. PMID: 18929686. PMCID: PMC2700030.