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# The impact of teledermatology during the COVID-19 pandemic

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## Abstract

Teledermatology has been widely adopted during the COVID-19 pandemic as virtual patient care promotes social distancing and decreases viral exposure risk. As teledermatology has become more prominent during this period, it is essential to assess whether virtual visits allow for adequate patient care. To assess perceptions of advantages and disadvantages of teledermatology, a survey was sent to academic dermatologists through the Association of Professors of Dermatology (APD) listserv. Of the physicians surveyed, 94% reported their departments had implemented teledermatology during the COVID-19 pandemic. The majority (64%) described teledermatology as an effective tool for patient care because of improved access to care, decreased risk of COVID-19 exposure, and convenience. Frequently cited limitations of teledermatology were image quality, technical difficulties, and inability to perform a comprehensive skin examination. Thirty-seven percent of respondents reported teledermatology as a contributor to their professional burnout. Although teledermatology has become more prevalent as a result of the pandemic, its role moving forward is uncertain given its limitations.

*Keywords: academic dermatologists, burnout, COVID-19, dermatology, teledermatology*

## Introduction

Teledermatology involves virtual interactions between dermatologists and patients, and this

method of healthcare delivery has been widely adopted during the COVID-19 pandemic as it promotes social distancing and decreases viral exposure risk for patients and providers [1]. In fact, 86.5% of U.S. dermatologists have offered teledermatology services during this period [2]. This likely represents significant growth of teledermatology as only 102 operational US teledermatology programs existed in 2016 [3]. As teledermatology becomes more prominent, it is essential to assess whether virtual visits allow for adequate patient care, especially in a field that relies on skin examination. This study aims to assess academic dermatologists' perceptions of the advantages and disadvantages of teledermatology and whether teledermatology has contributed to dermatologist burnout during the COVID-19 pandemic.

## Discussion

An anonymous REDCap survey approved by the Human Research Subjects Committee with consent exemption was sent through a listserv Email for the Association of Professors of Dermatology to 560 academic dermatologists. Survey questions assessed dermatologists' perceptions of teledermatology and its impact on patient care and physician burnout. Free text comments on the benefits and limitations of teledermatology were collected, grouped, and reported (**Table 1**).

**Table 1.** Reported benefits and limitations of teledermatology.

Benefits (number of free text comments, %)	Limitations (number of free text comments, %)
Improved access to dermatologic care (27, 26%)	Image quality (28, 26.9%)
Prevention of COVID exposure (23, 22.1%)	Technical difficulties (26, 25%)
Convenience of follow up (20, 19.2%)	Inability to perform procedures or thorough exam/evaluation (12, 11.5%)
Efficient triage method (15, 14.4%)	Inefficiency (8, 7.7%)
Reimbursement for patient messaging and teledermatology (2, 1.9%)	Patient expectations (3, 2.9%)
Lowers cost to patient (1, 0.96%)	Compensation issues (3, 2.9%)
Maintains patient-provider relationship (1, 0.96%)	Affect patient-provider relationship (3, 2.9%)

Of the 560 recipients, 104 dermatologists participated in the survey (**Table 2**), yielding a response rate of 19%. Of the participants, 94% reported that their departments implemented teledermatology in response to the COVID-19 pandemic. The majority (64%) described teledermatology as an effective tool for patient care. Frequently mentioned benefits of teledermatology included improved access to dermatologic care (26%), prevention of COVID-19 exposure (22.1%), convenience of follow up for both physicians and

patients (19.2%), efficiency as a triage method (14.4%), and reimbursement for patient messaging and teledermatology-associated patient care (1.9%). Dermatologists also described the limitations of teledermatology, which included image quality and inadequate view of skin lesions via video technology (26.9%), and technical difficulties (25%). Other challenges described were inability to perform procedures or thorough examination (11.5%), inefficient visits (7.7%), unrealistic patient expectations for a televisit (2.9%), compensation issues (2.9%), and decreased patient rapport (2.9%). Of respondents, 37% believed teledermatology contributed to their professional burnout.

**Table 2.** Dermatologist demographics.

Demographic characteristics	Number (%)
<b>Gender</b>	
Male	40 (38.5)
Female	64 (61.5)
<b>Age</b>	
18-29	0 (0)
30-39	33 (32)
40-49	39 (37)
50-59	17 (16)
60-69	11 (11)
70+	4 (4)
<b>Practice type<sup>a</sup></b>	
Academics	101 (97)
Private	7 (7)
Veterans affairs	6 (6)
<b>Region</b>	
Northeast	21 (20)
Midwest	29 (28)
South	36 (35)
West	18 (17)
<b>Setting</b>	
Urban	61 (59)
Suburban	40 (38)
Rural	3 (3)

<sup>a</sup>Survey participants could choose multiple practice types

Limitations of this study include a small sample size and possible nonresponse bias due to a response rate of 19%. However, our participant group reflects a diversity of geographic locations, ages, and professional roles within academic dermatology. The non-responders are likely demographically similar to responders as all survey recipients are employees of medical school or osteopathic college-associated dermatology departments or divisions. Another limitation is the majority of participants are academic dermatologists and thus may not accurately represent non-academic dermatologists' opinions on teledermatology.

Based on this survey, teledermatology has become a significant factor for dermatologist burnout during the COVID-19 pandemic. A recent global study by Bhargava et al. supports this finding as they reported teledermatology to be the most powerful factor for the increase in mental distress among dermatologists during the pandemic. They identified

reimbursement issues and a lack of institutional preparedness to launch teledermatology programs as contributors to burnout [4]. These findings also align with a recent study which found that 48% of academic dermatologists selected teledermatology as a major COVID-related contributor to burnout among a list of other COVID-related factors [5]. However, in this study, when asked specifically if teledermatology was a major source of burnout, 37% responded affirmatively, while 13% were unsure. Previous studies have also characterized the strengths and weaknesses of teledermatology, which echo our findings [2,6]. Overall, teledermatology increases access to dermatologic care for financially and geographically disadvantaged patients while promoting social distancing. However, technologic difficulties, indeterminate compensation, and decreased patient rapport limit the utility of teledermatology, and increase physician burnout.

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## Conclusion

Although teledermatology has become more prevalent as a result of the pandemic, its role moving forward is uncertain given its limitations and unknown impact of COVID-19 on future clinic volumes.

## Potential conflicts of interest

Steven R Feldman MD PhD has research grants from Lilly, Abbvie, Janssen, Pfizer, Almirall, and Galderma. He has speaking honoraria from Lilly, Abbvie, Janssen, Alvotect, Amgen and Sun. He receives consulting fees from Abbvie, Janssen, Alvotect, vTv, BMS, Samsung, Pfizer, Boehringer, Dermavant, Arcutis, Novartis, UCB, Helsinn, Sun, Almirall, Leo, Mylan, Forte, TwoXar, and Arena. He has stock and ownership of [www.DrScore.com](http://www.DrScore.com) and Causa Research. The remaining authors have no conflicts of interest to disclose.

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