Journal of Patient Experience
Volume 8: 1-5

DOI: 10.1177/2374373521996982
journals.sagepub.com/home/jpx
SAGE

Pandemic Pressure: Teledermatology and Health Care Disparities

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Keywords
COVID-19, telemedicine, telehealth, patient engagement, access to care

Introduction to Teledermatology

Telemedicine has grown in popularity in recent years, and the COVID-19 pandemic has spurred widespread adoption and advancement of telehealth. As a visually oriented field, dermatology is well-suited for telemedicine. In dermatology, long wait times for office visits and geographic disparities in access to care also contribute to increasing use of teledermatology (TD).

Multiple models of TD exist. Consults, referrals, triage, and many standard office visits can be efficiently performed via TD (1,2). Teledermatology has generally comparable clinical outcomes (3) to face-to-face (FTF) dermatologic care. Patients, referring clinicians, and dermatology providers all tend to be satisfied with TD (3,4). There are 2 main methods of TD: asynchronous store and forward and live interactive techniques.

Most studies indicate that TD is cost-effective for the health care system, patient, and society—especially (5) for populations with insufficient dermatology access. One advantage of TD is its use in providing care for underserved populations.

Effects of the COVID-19 Pandemic on Dermatology and Telemedicine

Since the escalation of the COVID-19 outbreak, social distancing became widely implemented. The American Academy of Dermatology recommended that all patients being seen for nonessential care be rescheduled or offered telemedicine alternatives, regardless of exposure status (6).

As the pandemic continued, it became clear that the postponement of in-person medical and surgical therapies could lead to exacerbation of many skin disorders and delay of identification and treatment of malignancies.

Teledermatology and teledermoscopy can diagnose malignant lesions (7), but still operate with lower accuracy than FTF evaluations. Full body skin exams, regular skin cancer screenings, and procedures are notable limitations of TD, and thus TD as an alternative care model will undoubtedly impact health outcomes (8). With melanoma incidence rising more than any other preventable cancer before the pandemic (9), this disruption of care may accelerate this dangerous trend.

The accelerated adoption of TD during the pandemic has created a rare opportunity to expand dermatology care for underserved populations and address health disparities. In reaction to the pandemic, most academic and private dermatology clinics now offer TD (10). As reopening progresses throughout the United States, in-person visits have recommenced, with precautions such as face masks and increased cleaning. However, many dermatology providers plan to continue offering TD after the pandemic (11).

Disparities in Dermatology

Disparities exist in care and outcomes among underserved and marginalized populations. A disparity is a difference linked to social or economic injustice, not differences in health status or preference. Racial and ethnic minorities, especially black patients, and LGBTQ+ individuals experience poorer health status and outcomes (12–14), with control for socioeconomic status (15), highlighting the effects of systemic discrimination on health.

The aging population, disparities in access to dermatology providers in rural areas, and increasing skin cancer rates all contribute to a high demand for dermatologic care. For

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skin cancer, especially melanoma, this can lead to poor health outcomes and higher mortality, as increased access to dermatologists is associated with earlier melanoma detection (16) and improved survival (17). Lower rates of skin cancer screening and melanoma awareness among marginalized communities, including Black Indigenous People of Color (BIPOC), may further impact mortality and morbidity disparities (18,19).

Populations that are marginalized, uninsured, lower income, LGBTQ+ men (20), and those with lower education levels have higher skin cancer mortality (21). When melanoma outcomes were studied, ethnic minorities have lower 5-year survival and present with more advanced stages—even with age, sex, and geographic location adjustments (22). There are racial disparities in the treatment of atopic dermatitis (AD) and psoriasis—black children with poorly controlled AD are less likely to be seen by a dermatologist and black psoriasis patients are less likely to be prescribed biologics for treatment than white patients (23,24). Disparities in access to dermatology care contribute to such inequitable outcomes.

There are also educational disparities in dermatology. Coverage of conditions in skin of color and LGBTQ+ populations is underrepresented in dermatologic education and conferences (25,26). Consequently, many physicians lack experience in assessing skin of color or specific dermatologic issues faced by LGBTQ+ individuals.

How TD Can Address Disparities in Dermatology

Overcoming Physical Barriers to Care

Teledermatology can address dermatologic needs of those with limited mobility, the critically ill, and remote communities. Many rural areas in the United States lack local dermatologists (3), and accordingly, rural TD patients and providers report higher satisfaction than those in urban areas (27). Cost reductions are directly proportional to the distance to dermatology clinics, as well as the number of prevented in-person visits (28–30).

Due to the advancement of personal mobile technology such as phones and tablets, TD may be more viable than FTF visits for some. Mobile phones are rising in prevalence worldwide and often have higher availability and reliability than alternative electronic communication technologies (31). Smartphone owners are the majority across a wide range of demographic groups; in 2019, 82% of white Americans, 80% of black Americans, and 79% of Hispanic Americans owned a smartphone (32). Furthermore, medically underserved populations, such as black and Hispanic patients, are more likely to use their phones to research health information (33). Although retrieving health information online is distinct from technology-facilitated communication with health care providers, these data indicate the possibility of mobile technologies as a route for addressing racial health care access inequities.

The greatest variation in smartphone ownership is seen with age, household income, and educational attainment (32). Digital technology and high-speed internet access and use among rural communities is lower compared to nonrural areas (34). However, smartphone ownership is becoming increasingly common among both lower income and rural groups (34,35).

Smartphone image quality is often acceptable for TD use (36–39). Handheld tablets are increasingly utilized (40) and may be superior for image analysis over smartphones. Mobile technologies thus have strong potential to improve health care communication and access for patients, especially if investments are made in improving wireless technological infrastructure for lower income, rural communities that often lack health care resources and providers.

Raising Sun Protection Awareness

Sun protection practices and awareness are major tenets of dermatologic care. While total body skin examinations cannot be performed via TD, an important limitation, providers can inform patients about skin cancer risks and recommendations for sun protection and self-examination. Increasing accessibility of sun protection recommendations could enhance safe sun practices, prompt more patients to seek dermatologic evaluation, and consequently reduce rates and mortality of skin cancer.

Expanding Provider Access for Culturally Competent Care

Studies suggest that patients feel more comfortable with doctors who share their racial and cultural identities, in large part due to discriminatory healthcare settings and historical mistreatment which subject patients of marginalized identities to barriers receiving high-quality care. However, due to unequal representation in medicine, the regional availability of such physicians is often too low to match patient volume; this has been described particularly for black physicians and black patients (41). Using TD to enhance physician access would provide care to areas with fewer dermatology providers, potentially aiding BIPOC populations to connect with doctors with similar racial and cultural backgrounds, which is associated with better health outcomes and patient satisfaction (41). LGBTQ+ youth, over 90% of whom use mobile phones, may also benefit from online health services, as they often encounter discrimination in FTF care and may face fear of exposure from being seen at LGBTQ+-centered clinics (42).

Improving Inpatient Consult Efficiency

Inpatient dermatology consults are beneficial for patient outcomes (43), yet there is a significant gap between the need

for inpatient dermatology care and the availability of dermatology hospitalists (2,44). Many hospitals lack inpatient dermatology consult services. Store and forward TD exhibits strong concordance with in-person dermatology hospitalists (1), and thus is a reliable method for triaging inpatient dermatology consultations and increasing the efficiency and availability of consult services.

Disparities and Limitations With TD

Despite the fact that dermatology is visual, a substantial amount of patient visits require "hands on" interaction. Examples include palpating a lesion to ascertain the underlying structure, using dermoscopy to carefully examine pigment patterns, and performing skin biopsies and excisions.

In addition, TD has limitations for addressing disparities. The use of the TD depends heavily on internet access and connection. Although connectivity is increasing worldwide, access and proficiency are not spread equally. The ability to connect with and use technologies such as the internet is stratified by age, race, socioeconomic status, and geographic and residential location (45,46).

Insurance coverage and provider reimbursement is another profound limitation of TD. Some form of reimbursement is offered by Medicare, Medicaid, and some private payers, yet policies vary by state and company and are often in flux. Reimbursement rates have changed in response to the COVID-19 pandemic, with the Centers for Medicare & Medicaid Services (CMS) and some major private payers (such as United HealthCare, Cigna, and Aetna) expanding coverage of telehealth services (47). Certain coverage expansion offers are temporary or come with time limits; however, CMS has identified the expansion of telehealth reimbursement as a priority and is currently initiating proposals to make expanded telehealth coverage permanent (48). Dermatologists can now bill for TD visits regardless of patient location, and virtual evaluation and management visits are rated equivalently to in-person visits (49). One recent analysis found that TD consults served more Medicaid enrollees than FTF visits, demonstrating the impact of expanding coverage (50).

Engaging geriatric populations in care management with TD, and telemedicine in general, is an important hurdle, as older patients are more at risk for many malignancies and severe, chronic health conditions, including skin cancer. Additionally, expanding TD programs has the potential to interfere with establishment of specialist training programs in underserved areas, which could exacerbate the disparities in accessible in-person healthcare.

Conclusion

Teledermatology use and technologies are growing, catalyzed by the COVID-19 pandemic. Inequities in access to dermatologic care can be ameliorated partially by TD, potentially improving outcomes. Teledermatology can aid in screening, patient education, and many chronic dermatologic conditions. Unequal technological access and proficiency, as well as procedural and diagnostic limitations, are drawbacks to TD.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr Lio is an investor and advisor for Modernizing Medicine, an electronic medical record company.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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