Social media use in dermatology

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Abstract

Social media provides a readily accessible means to promote user-generated content, broaden interpersonal connections, and encourage social collaboration. In this paper, we will review the use of popular social media platforms within dermatology along with the potential benefits and harms of these platforms when used by dermatology providers and their patients. Social media has also found a place in medicine and presents new opportunities and challenges for health care professionals. In dermatology specifically, social media has become a platform for patient education, public outreach, and professional development and networking. Although there are many risks associated with social media use in dermatology, there is also opportunity to promote public health, patient education, and professional interactions.

Keywords: Dermatology, dermatology journals, Facebook, professional dermatology organizations, social media, YouTube

INTRODUCTION

Participation in social media has increased drastically over the past few decades. In the United States (US), the percent of adults using social media increased from 8% in 2005 to 69% in 2018.[1] Studies have also shown that 86% of adults aged 18 through 29 are social media users and that 74% of Facebook users, 60% of Instagram users, and 63% of Snapchat users login to the respective platform at least once per day.[1] In addition, each day over 250 million Twitter users send over 500 million tweets[2] and 5 billion videos are viewed on YouTube.[3] Because of this increase in the usage of social media, the health-care field faces new opportunities and challenges. From public health and patient education to professional networking and physician-patient interactions, social media has solidified an increasingly important role in healthcare.[4] In addition, the variations among different social media platforms present unique challenges that must be taken into consideration by the user.[5]

The meaning of the term “social media” is broad and constantly evolving. In general, social media refers to websites or applications that allow users to communicate with one another, share information and ideas, send personal messages, and in some cases, connect with other users in real time.[6,7] Depending on the social media platform, applications can be used for blogs, video or photo sharing and editing, social
networks, or content production. In this work, we review the current literature to understand the integration of social media platforms in the field of dermatology. Specifically, we will focus on the opportunities for dermatology related to Facebook, Twitter, Instagram, Tumblr, Snapchat, WeChat, Reddit, and YouTube. Finally, we will discuss the challenges associated with each platform.

**Dermatology in Social Media**

**Dermatology and Facebook**

Facebook remains the most popular social media platform worldwide, with over 1.8 billion monthly active users. Facebook is composed of user-generated content and is typically used for social interaction and real-time communication. In the health-care field, Facebook introduces many new opportunities for networking, professional education, and patient education.

A recent study showed that Facebook accounts are common among medical students (77%–80%) and health-care professionals (HCPs) (13%–47%)[7] and dermatology journals have used Facebook to increase their outreach and collaboration. In a 2012 study, Amir et al. showed that almost 13% of dermatology journals were present on Facebook[8] and that number has increased to almost 18% in 2017.[9] Most notably, on Facebook, The Journal of the American Academy of Dermatology (JAAD) has roughly 56,000 likes and has 59,000 followers. Following JAAD, JAMA dermatology had the second-greatest number of likes in 2017, followed by the Journal of Investigative Dermatology (JID).[9,10]

Professional dermatology organizations have also increased their public and professional engagement through Facebook.[11] Popular professional dermatology organizations with the most likes on Facebook include dermRounds Dermatology Network, American Academy of Dermatology, and Associated Skin Care Professionals.[8]

Facebook has also been used as an educational platform with the goal of helping providers to provide the highest-quality care to patients. Groups like DermLife and The Dermapaths, a group specifically for dermatopathologists, promote this goal. Another group, The Dermatologists, with roughly 4200 doctors and residents as members focuses on providers helping one another with particularly difficult cases. In addition, the group, The Board Certified Dermatologists, allows membership for board certified North American dermatologists and allows providers to share cases and act as a platform for many clinical, practice-based, and other topics. Finally, SkinSanity, formed through Facebook, is a conference created by The Board Certified Dermatologist Facebook group to provide educational talks and discussions for dermatologists with no industry support or advertising.

The communication capabilities of Facebook are also used to improve medical education. In dermatology, reports describe the benefit of visually-oriented social media platforms, such as Facebook for use in medical student education.[12] Moreover, Facebook has found an avenue to enhance patient education and in some cases, patient care. There has been an increase in the number of dermatology journals and patient-centered groups that use Facebook to help educate the public.[8] One study assessing public engagement using Facebook found online educational posts most effective.[13] This is likely because Facebook provides a simple, interactive, and inexpensive tool to engage the public in dermatologic education.

**Dermatology and YouTube**

YouTube is a video-sharing website that allows users to upload and comment on videos and to subscribe to channels.[14] It is the second-most popular website in the world[15] and hosts almost 30 billion monthly users with an average viewing session of 40 min.[16] Given YouTube’s large Internet presence and the growing tendency of people to research health information on the web, it is not surprising that dermatology has a strong presence on YouTube. The presence of dermatology on YouTube is increasing, with most of its content being educational or advocacy.[16,17] Of the videos analyzed, 42% were uploaded by HCPs, where 28% were board-certified dermatologists. One dermatologist, Dr. Sandra Lee (aka Dr. Pimple Popper), uses YouTube to post educational videos and interact with her audience of more than 5 million subscribers and hosts a television show on a major cable network.[18] This increase in availability of dermatologic information on YouTube demonstrates an opportunity for HCPs to inform the public about popular dermatologic topics. However, similar to other platforms, YouTube often contains incorrect or misleading information that must be substantiated with more reliable sources.[19]

**Dermatology and Messenger Applications**

There are a variety of messenger applications that are implicated in dermatologic care including Facebook Messenger, WhatsApp, QQ Chat, Viber, and Line. Combined, this collection of applications accounts for approximately 4.05 billion monthly users [Table 1].[20] This collection of social media applications is inherently different from the aforementioned platforms because their goal is to facilitate conversations between two individuals or small groups of people. Unfortunately, dermatologists will often receive messages from friends, family, or colleagues regarding skin lesions asking for advice. This practice can put the practitioner at medicolegal risk. These channels are not Health Insurance Portability and Accountability Act (HIPAA) compliant and there is often no medical record of such communications. While some may contain end-to-end encryption (i.e., WhatsApp), these platforms do not contain access controls or audit controls, passwords are not required, and devices may not track or save data.

**Dermatology and Instagram**

Instagram is a popular photo and video sharing media platform among teens and young adults. In June of 2018, Instagram reached 1 billion users worldwide, with the US ranking first in usage, followed by India and Brazil.[21] Instagram “hashtags” allow users to search for and identify content related to a
specific topic. In one study, researchers showed that the top three dermatology-related “hashtags” included #acne, #alopecia, and #eczema.[23] Physicians of all medical specialties including dermatologists have created Instagram profiles that allow their followers to see before and after procedure photos, patient education material, and advertisements for cosmetic lines and in-office promotions. In the academic environment, Instagram is used to connect and inform students of events, annonce services, and provide public education; however, this tool is underutilized in dermatology. One study found that 7% of dermatology departments have an Instagram profile.[23] Among the dermatology programs using Instagram, the profiles

| Social media platform | Monthly active users[20] (in millions) | Typical use | Opportunities in dermatology | Challenges |
|-----------------------|----------------------------------------|-------------|-------------------------------|------------|
| Facebook              | 2230                                   | User-generated content, social interactions, and real-time communication | Patient education, wide and rapid spread of information, professional networking, platform for collaborations | HIPAA violations, inadequate or inaccurate explanation of information |
| YouTube               | 1900                                   | Video-sharing service with the ability to comment and vote on videos | Entry point to dispel misinformation and promote public knowledge, many videos by healthcare providers | HIPAA violations, videos do not need to be screened to be posted, can spread misinformation, physicians may fear posting due to legal issues |
| WhatsApp*:*           | 1500                                   | Communication among two individuals or small groups of people | Fast, quick communication between providers and other professionals | HIPAA violations, inability to document conversations, no access or audit controls |
| Messenger*:*          | 1300                                   | Communication among two individuals or small groups of people | Fast, quick communication between providers and other professionals | HIPAA violations, inability to document conversations, no access or audit controls |
| Instagram             | 1000                                   | Photo and video sharing, exchange of messages | Patient education, wide and rapid spread of information, marketing, networking | HIPAA violations, inadequate or inaccurate explanation of information |
| WeChat                | 989                                    | Photo and video sharing, exchange messages, make phone calls, schedule medical appointments, make payments, read daily news | Schedule appointments promote health campaigns, increase treatment adherence, raise public awareness, academic journal outreach | HIPAA violations, inadequate or inaccurate information spread, |
| QQ Chat<^*            | 783                                    | Communication among two individuals or small groups of people | Fast, quick communication between providers and other professionals. | HIPAA violations, inability to document conversations, no access or audit controls |
| QZone                 | 652                                    | User-generated content, social interactions, and real-time communication | Patient education, wide and rapid spread of information, professional networking, platform for collaborations | HIPAA violations, inadequate or inaccurate explanation of information |
| Twitter               | 336                                    | Micro-blogging, exchange messages | Patient education, wide and rapid spread of information, communicate dermatologic concerns | HIPAA violations, inadequate or inaccurate information spread |
| Reddit                | 330                                    | Community of users who generate subreddits based on different interests | Entry point to dispel misinformation and promote public knowledge, subreddits based on interest, ability to postanonymously | HIPAA violations, responses do not require prescreening, anyone can postanonymously, can spread misinformation, physicians may fear posting due to legal issues |
| Viber<^*              | 249                                    | Communication among two individuals or small groups of people | Fast, quick communication between providers and other professionals | HIPAA violations, inability to document conversations, no access or audit controls |
| Pinterest             | 200                                    | Sharing images, videos, and ideas for the purpose of creating “pins” and “boards” | Creation of communities and “boards” that are specific towards dermatologic conditions, academic journals, or professional societies | HIPAA violations, inadequate or inaccurate explanation of information |
| Snapchat              | 200                                    | Story-sharing app that allows users to send transient (24 h) videos privately or postpublicly | Spread of information, brand marketing, initiates interest in the field, stories can be replayed, stories can reach a large number of people | HIPAA violations, inadequate or inaccurate explanation of information, transient nature of stories (24 h) |
| Line<^*               | 218                                    | Communication among two individuals or small groups of people | Fast, quick communication between providers and other professionals | HIPAA violations, inability to document conversations, no access or audit controls |
| Tumblr                | 115                                    | Blogging and blog-sharing, share and discuss multimedia content | Patient education, connect with other professionals, communicate dermatologic concerns | HIPAA violations, inadequate or inaccurate information spread, posts on highly sensitive topics |

*Owned by Facebook, <^*Primarily Messenger Applications. HIPAA: Health Insurance Portability and Accountability Act
with a greater number of followers are New York Presbyterian Hospital (Columbia Campus), University of Utah, and Yale New Haven. Furthermore, patient advocate groups, such as the Melanoma Research Foundation, have used Instagram to promote events and educational outreach. A recent study found that 5% of dermatologic focused Instagram posts were made by a board certified dermatologist.

**Dermatology and WeChat**

WeChat, popular in China, is a multi-use platform commonly referred to as the “app for everything.” It is similar to WhatsApp in that it allows its users to share photos and videos, make phone calls, schedule medical appointments, distribute messages within closed groups, read daily news, and make payments. Many hospitals in China have adopted the platform to schedule appointments, promote health campaigns, and increase treatment adherence. Moreover, The Chinese Center for evidenced-based medicine uses WeChat to distribute Cochrane reviews translated into simple messages in order to raise public awareness. In dermatology, WeChat has been adopted by many high-impact dermatology journals, including JAAD, JAMA Dermatology, British Journal of Dermatology, and JID. Furthermore, it is used to share postoperative photos and care instructions for infants treated with photodynamic therapy for port-wine stain. Despite WeChat’s potential in dermatology, it does not come without limitations. The medical information can be of questionable accuracy, and there are often patient privacy issues.

**Dermatology and QZone**

QZone, established in 2005, is a Chinese-based social networking website that allows users to share content such as pictures, music, and videos, as well as write blogs and keep diaries. Because of its origin in China, the platform is subject to a variety of censorship. The sensitivity of the censorship screening varies but may extend to medical information. In fact, there are reports of posts and articles concerning the vaccine industry being deleted or moderated. Although the impact of censorship is unknown with respect to dermatology, it is an important consideration as this platform continues to grow and maintain influence.

**Dermatology and Twitter**

Twitter, used by over 100 million people everyday, is typically used as a microblogging platform where users share short messages (up to 140 characters) with another. Twitter users refer to these short messages as “tweets” and can share these tweets with particular users or “retweet” messages from another account. With Twitter’s ability to send messages through mobile devices to an extremely large audience, it is no surprise that this platform also has potential in the healthcare field. In dermatology, Twitter has become a popular platform for users to communicate dermatologic concerns. One study shows that almost 85,000 tweets over a 1-year period communicated personal concerns with skin disease while another study shows that the most common type of re-tweeted tweets (43.1%) are about acne. Furthermore, medical schools have begun using Twitter to increase student engagement. For example, Northwest Ohio Medical University used twitter to postweekly dermatology quizzes and successfully increased student engagement from 23.8% to 55.9%. Furthermore, physicians may use Twitter to answer disease-related questions or simply to weigh in on common medical misconceptions. Along these lines, one of the biggest challenges facing Twitter is the dissemination of misperceptions related to dermatologic diseases. With such a large young adult population communicating information through Twitter, there is a significant amount of incorrect information, empirical data, and myths circulating that may influence a patient’s approach to dermatologic concerns.

**Dermatology and Reddit**

Reddit is a website that allows users to join communities of people with similar interests to share and learn information about these topics. For example, within the Reddit website, there are over 150,000 “subreddits” containing threads of comments pertaining to a particular topic where users are able to comment and communicate with one another. There are over 330 million Reddit users, with over 40 million Reddit searches per day making Reddit the 20th most visited internet site in the world. In addition, Reddit serves as an important source of healthcare information, as many users solicit medical advice from the site. Dermatology, in particular, has several subreddits with the most common being cosmetic advice, disease identification, and medications. However, Reddit presents challenges as it allows members to postresponses to medical questions, thus introducing the possibility for dissemination of inaccurate or dangerous medical advice. Reddit’s opportunity for direct communication is an entry point for physicians to provide accurate information and dispel false information, promoting knowledge about common dermatologic topics as a public health measure.

**Dermatology and Pinterest**

Pinterest started in 2009 as a platform designed to share images, GIFs, and videos. The platform has been popularized for its ability to catalog ideas and “do it yourself” projects. Users are able to upload images, “pin” images, and create “boards” (collections of pins). Like other social media platforms, Pinterest is a popular site for individuals and businesses to share content and information. Pinterest contains a variety of informational graphs, business advertisements, cartoons, and other image-based content where users can interact. With respect to dermatology, studies show that informative pins, advocacy, and home remedies compose the majority of dermatology related “pins” and “boards.” However, it is important to note that only 24% of these “boards” were created by M.D.s or advocacy organizations.

**Dermatology and Snapchat**

Snapchat, developed in 2011, is a social media application that allows users to share photos and videos with other users for 24 h. Users also have a home screen that displays popular news from celebrity users, news sources, magazines, etc.
In 2018, Snapchat boasted an estimated 188 million daily users with an average user spending over 30 min/day on the application.\[^{42}\] Snapchat’s interface of quick 10-s stories captures the attention of the audience and the story features allow millions of people to view the same story posted by a particular user. This form of social media is increasingly popular in the health-care field as a means of educating the public and promoting a user’s brand.\[^{43}\] For example, Dr. Michael Salzhauer (a plastic surgeon better known as Dr. Snapchat) posts his surgeries live and receives over 700,000 views/day.\[^{44}\] He uses Snapchat as a tool to educate the public as well as generate new clientele, as over 60% of new patients in his office come from Snapchat and other social media.\[^{44}\] The potential benefit of social media, specifically Snapchat, is clear in healthcare, but the use of Snapchat in dermatology is lagging behind that of other healthcare fields.\[^{1}\] The sparse number of dermatologists on Snapchat is hypothesized to be due to a lack of permanency of the app, where posts disappear after 24 h.\[^{45}\]

**Dermatology and Tumblr**

Launched in 2007, Tumblr is a social blogging platform to share and discuss multimedia content. Since its start, Tumblr has amassed over 340 registered accounts with over 148 billion posts on the platform.\[^{46}\] Private practice dermatologists use Tumblr to disperse dermatologic education and videos of procedures;\[^{47}\] however, none of the top dermatology journals, professional organizations, or patient advocacy groups utilize Tumblr to connect with the public.\[^{35,47}\] Healthcare students and professionals use Tumblr to connect with people interested in their profession and provide insight into their daily lives. More prominently, Tumblr is used as an outlet where patients can postblogs about their concerns and experiences while also receiving support and opening a dialogue with their audience.\[^{4}\]

Aside from privacy issues and the possibility of disseminating medical misinformation, there are additional concerns due to Tumblr’s lack of user anonymity.\[^{48}\]

**Social Media Opportunities in Dermatology**

Each platform is designed to function independently; however, there is a degree of interoperability among platforms, of which there is incredible potential. Communication among a given platform is limited to its subscribers at any given time. With multiple social media sites, it can be difficult to maintain regular activity or gather enough worldwide users but with improved interoperability, single users are capable of connecting with far more people, organizations, and businesses. Social media interoperability is still in its infancy, but there is a great opportunity for health care providers to enhance communities and disseminate information at a greater, more efficient rate. Improved interoperability would also allow for greater patient recruitment and social media-based research.

With the vast network that social media provides, the opportunity to develop new communicative pathways between physicians and patients is tremendous. One example is social media-based dermatologic and health research. In recent years, the number of social-media-based publications has increased.\[^{49}\] Such research allows medical professionals to understand vital patient information such as health habits and patient concerns, however, one major drawback is the biased demographics. In fact, the majority of social media users are white women between the ages of 30–49.\[^{50}\] Therefore, social media-based research must be cognizant of the inherent biases that may be present.

An additional opportunity for social media in dermatology is patient recruitment for clinical research. Considering each clinical study has a target population, social media provides tremendous opportunity to gather a large volume of patients. However, patient demographics and disease prevalence likely vary between platforms. Currently, it is difficult to know whether there is a social media preference by specific target populations; but, understanding such information would be invaluable in the utilization of social media for patient recruitment.

With the increasing popularity of telehealth, social media is a key entity in connecting physicians with other professionals and patients.\[^{51}\] As social media continues to develop, one interesting prospect is the concept of reimbursements over social media communications. Such an implementation would have a variety of barriers but may be possible through the continued development of new platforms. Already, physician specific social media sites (e.g., QuantiaMD, Sermo, Dexterity, and iMedExchange) afford physicians the opportunity to connect with one another. Similarly, GroupMe, a platform used to share and arrange multimedia within a group, has been used in dermatology and healthcare to allow professional groups to easily share content and knowledge related to a specific topic.\[^{52}\] Furthermore, large professional groups such as Keratinocyte Carcinoma Collaborators and Cochrane use the collaboration platforms Yammer and Slack, respectively, as a means of easily connecting with people across the organization.\[^{53}\]

Finally, dermatologic based social media communication, research, and outreach has tremendous value from a public health perspective. Social media is one of the fastest means for the dissemination of information, especially when content goes “viral.” In fact, the dissemination of public health knowledge through social media platforms has demonstrated a positive impact on health outcomes and patient behaviors.\[^{54}\]

**Challenges of Social Media and Healthcare**

Maybe the most concerning challenge of social media use in healthcare is the spread of unreliable and sometimes incorrect medical information. Most authors of medical information on social media platforms have unverified credentials and are generally underqualified. Furthermore, the information put forth on these platforms is often incomplete, unreferenced, and based on personal anecdotes.\[^{43,55}\] While most medical literature is evidence-based, medical information through social media focuses on individual stories and experiences that may not be generalizable to the population at large.\[^{56}\]
Professionalism is an additional, ongoing concern with the increased use of social media platforms. Already, there are a variety of moral, legal, and ethical considerations for physicians to consider when engaging in social media. For example, dermatologists may have reservations about providing comments and suggestions based on the limited information provided through a social media post. In addition, new legal and ethical dilemmas arise as more and more physicians participate in social media and gain a following. In one New York Times article, they describe plastic surgeon’s using their Instagram accounts to post about a drug company’s product during a weekend trip without disclosing that the company sponsored the event. The American Medical Association has generated a set of guidelines for physicians and providers to consider when interacting on social media. Their practical suggestions for best practices include maintaining responsibility for one’s social media presence; being cognizant of one’s posts; protecting HIPAA and one’s own privacy; respecting work policies and commitments; protecting anonymity and using disclaimers; protecting confidential information; and seeking expert guidance if there is any concern about such guidelines. Interacting with patients on social media sites is generally discouraged, but there may be a role for physician and patient avenues embedded within social media in future.

Other challenges of social media use in healthcare are centered on patient privacy and violations between patient-provider interactions. HIPAA was instated in 2003 to protect patient’s medical information and identity. Social media has brought forth new challenges in this respect, specifically HCPs using identifying patient information in public posts. In one study, it was found that 17% of blogs written by HCPs describing individual patients had enough information to identify the patient or the provider. Dermatologists using social media should take additional precautions, as many dermatology posts include images of skin in which a patient’s individual characteristics may be identified. Recommendations, such as stating affiliations and potential biases; refraining from providing diagnoses or treatment plans through social media; obtaining patient consent before posting images; and removing any identifiable information are suggested to prevent dermatologists and dermatology practices from patient privacy infringements.

In addition to HIPAA violations, social media has redefined privacy and the significance of storing and disseminating user information. The recent Facebook debacle, for instance, caused the personal information of over 50 million users to be exposed to the public at large. Technological innovation is not limited to social media. The ability to “hack” and breach security persists and there is no guarantee that a truly private or secure system will ever exist.

**Conclusion**

More than 86% of people in the US use social media at least once per day with the average person spending over 5 years of their life on social media. This trend is not likely to slow down and demonstrates the need for an intersection between social media and healthcare. With 80% of people searching the Internet for health information, there is an onus on HCPs to maintain a presence on social media where possible to dispel misinformation and circulate evidence-based knowledge. Although there are many risks associated with using social media in healthcare and dermatology specifically, the opportunity to promote public health, patient education, and professional interactions is impactful and should not be missed.

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