



Social Media as a Medium for Dermatologic Education

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Abstract

Purpose of Review We explore the utility of social media platforms as educational tools in dermatology, providing a summary of how these sites are used by the public and dermatologists alike, and demonstrating ways these findings may be applied for educational purposes.

Recent Findings Over half of the world's population utilizes social media platforms. More recently, these platforms have increasingly been used for educational purposes. In the field of dermatology, a large portion of the educational content is coming from users with no formal medical or dermatologic training.

Summary Each of the top five social media platforms in the world (Twitter, Instagram, TikTok, YouTube, and Facebook) has unique qualities which people may utilize to educate fellow users. As more of the population seeks online health information and education, it is important that dermatologists, while taking ethical considerations into account, become more comfortable facilitating educational content on social media.

Keywords Social media · Facebook · Twitter · Instagram · Youtube · Tiktok · Education

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Introduction

Social media has seen a sharp rise in user engagement over the past two decades, with more than half of the world's population having an online social media account [1]. The dramatic uptick in social media users is partly attributable to the worldwide pandemic of COVID-19 [2]. Facebook, Instagram, YouTube, Twitter, and TikTok have consistently demonstrated to be the most heavily trafficked platforms by online users [3]. These digital programs can both reach and influence a large audience. In recent years, the utility of social media for educational purposes has gained traction which has only intensified since the start of the pandemic [4]. Moreover, due to the diverse nature of accessible information, social media is employed by patients of all ages and for many uses. Examples of easily obtainable information include news updates, instructional tutorials, and the ability to acquire knowledge in various avenues, including healthcare. In fact, the use of social media in healthcare as a tool for patient education and professional communication has been increasing [5]. Specifically, the field of dermatology has seen a large increase in the amount of educational content being displayed on social media platforms, with much of the content coming from people with no formal medical or dermatological training [6••].

In this review, the aforementioned social media platforms will be examined to identify how each site can be used to educate the public, from where the information is originating, how the online spread of misinformation can be stopped, and the implications these factors have on the field of dermatology.

Twitter

Founded in 2006, Twitter quickly became one of the largest social media networking platforms, with a current estimate of nearly 313 million users [7]. Users have the ability to produce and share their own text, photos, and videos through short “tweets” limited to 280 characters. Moreover, a “hashtag” can be inserted into posts which creates a way of linking posts with others based on similar content. Twitter has become an online community for educators, students, and scholars to interact, engage, and share their insights on common interests [8]. Users can facilitate education through several modalities, such as tweetorials (a portmanteau merging tweet and tutorial), polls, and live features [9]. Tweetorials are a thread of related tweets that in essence creates a mini lecture series on a particular subject. Polls can be created to garner opinions from others and assess one’s knowledge of concepts. Finally, Twitter users are able to create live stream videos where members can broadcast their content to online users.

Twitter has become the most popular form of social media used for healthcare communication, especially in the field of dermatology [10]. Twitter allows the public to converse about skin diseases, thus, promoting skin disease awareness. It harbors a safe space for patients struggling with similar skin conditions to embrace social and emotional support [11]. Issues that can arise from the dissemination of misinformation by the public include inappropriate diagnoses given by non-medical professionals, unsolicited advice for treatment options, incorrect and inappropriate treatment recommendations, and the suggestion of non-beneficial home remedies. In fact, a recent study, which examined the discussion of acne on Twitter, highlighted major misconceptions and inconsistencies between the online forum respective to American Academy of Dermatology (AAD) recommendations [12]. In an effort to provide education to the public, dermatologists and the field as a whole have made great strides to increase their presence on Twitter. For example, distinguished dermatology journals such as *Journal of the American Academy of Dermatology* (JAAD) and *Journal of the American Medical Association* (JAMA) Dermatology post about the latest publications on their Twitter accounts [13]. Additionally, organizations with a substantial following, such as *dermRounds Dermatology Network* (@dermatology; over 19,000 followers), strive to not only educate the

general online community but to also keep dermatologists up to date with new research and guidelines. Followers of this account are able to participate in clinical photo quizzes of dermatologic conditions and discuss skin disorders with other interested followers. Twitter also facilitates online journal clubs where physicians can collaborate and network on a global scale [14•].

The utilization of Twitter for educational purposes has implications for the general public, higher education institutions, and professional organizations. Considering Twitter’s involvement in healthcare, it should be recognized as an essential component for education broadcasting by dermatologists. Many board-certified dermatologists have active accounts on Twitter where they post educational content for patients and help dispel misinformation that exists on this platform [15]. Finally, a potential drawback educators may face on Twitter is the 280 character limit for tweets. However, the use of tweetorials by educators can circumvent this limitation.

Instagram

Instagram, founded in 2010, specializes in photo and video sharing. Current estimates report 2 billion monthly active users access the platform [16]. On this domain, users create a personal profile to post photos and videos with a short caption below each post. Users are also able to create short video clips known as “reels” which have a 15 s duration limit. Another feature includes the ability to broadcast live for up to a 4 h time period. Instagram allows users to search topics of interest by typing in a word or phrase preceded by a hashtag symbol. This allows for tailored content viewing by users. The ability to disseminate information through these features, combined with the ability to reach millions of users daily, has afforded Instagram a unique position as a platform for medical, and specifically dermatologic, education [17].

Instagram has been used for educational purposes by higher education institutions, companies, organizations, and licensed professionals and social media “influencers”. For example, many universities have their own Instagram page in order to share career advancement and professional opportunities, along with other school related activities [18]. There has also been a considerable rise in the number of active Instagram accounts by US dermatology residency programs, increasing from 9 programs in 2019 to 74 programs in 2021 [19, 20]. Some platform users are deemed “influencers” due to their large follower base and broad reach of content shared. A problem arises when influencers that are not medically trained begin to educate their followers on topics they are not qualified in. For instance, a recent study demonstrated

that board-certified dermatologists produced only a small amount of the top dermatology-related posts on Instagram [21]. In response to this spread of dermatologic misinformation, many board certified dermatologists have utilized social media to post content specific to the field by sharing photos and videos that detail suggested products, skin routines, and treatment tips which align with medical practice and appropriate recommendations [22•]. Instagram, in this manner, can be used as an educational platform to correct and communicate accurate dermatologic information, with the goal of eventually halting the spread of misinformation.

TikTok

With 1 billion monthly users, TikTok, founded in 2016, although the most recent, has quickly become one of the largest social media platforms available to the general public [23]. Videos with a duration limit of up to three minutes can be creatively edited with custom captions, filters, and music to be shared online. Similar to other major platforms, “hashtags” are commonly used to tailor search results to identify more specific content. Unique to TikTok, however, is the duet feature. Utilizing this feature, users can respond directly to other videos with their own videos displayed next to the original post. This feature is unique as it allows dermatologists to respond to inaccurate videos describing dermatologic diagnoses and treatments and provide correct information for future viewers. Additionally, it provides an opportunity to offer additional information regarding the original video topic, critiques, or reactions [22•]. For example, @teawithmd (Dr. Joyce) has utilized this feature to list differential diagnoses and treatments for hyperkeratosis on the feet [24].

As with the prior social media platforms mentioned, TikTok similarly has an extensive amount of dermatology-related information shared by non-dermatologist users. In a recent study, nearly half of the 171 dermatology-related TikTok videos surveyed were posted by patients or non-medically trained influencers [25]. In the surveyed videos which were categorized as educational, the content quality of videos was found to be low, even if they were highly viewed or “popular” videos. Educational quality was found to be higher and concordant with AAD guidelines when posted by a board-certified dermatologist [25–27]. With the presence of more dermatologists utilizing TikTok for dermatologic education, the risk of patients misdiagnosing themselves and inappropriately self-treating will be reduced.

YouTube

YouTube has grown to be the world’s largest online video platform since its founding in 2005, with nearly 2.3 billion monthly users [28]. As video media is often integrated into the teaching process, YouTube has enormous potential to be utilized as a tool in education, and more specifically, health education. Recently, the website launched a new feature, named “YouTube Learning” which is directed towards those with the intent to learn new information, skills, and concepts [29]. Regarding its utilization in the healthcare field of dermatology, a study of patients with chronic urticaria found YouTube to be the second most utilized source of general health and disease specific information [30]. The video time limit of 12 h allows for in-depth lectures on the pathophysiology, diagnosis, or treatment of a disease. None of the previously mentioned platforms allow for this extensive teaching time. Likewise, videos may provide step by step tutorials on procedures or expectations for patients to have regarding an upcoming dermatologic surgery or treatment [31].

Dermatologists have recently recognized the utilization of YouTube in education, as demonstrated by a 2018 study which suggested 35% of dermatology-related videos shared on YouTube are educational in nature [32]. However, because of uploads from users without formal medical education, validity of the information shared is an important consideration. Firsthand experiences and anecdotes are highly prevalent, often clouding what is accepted as standard medical practice [33]. A study which surveyed 234 dermatology-related YouTube videos had independent reviewers assign each video a standardized score based on the quality of the information. As expected, the quality of information in videos produced by board-certified dermatologists was greater than that of other untrained influencers [34••, 35]. Yet, the YouTube algorithm does not query video searches based on quality, and videos are more likely to be viewed if a patient testimonial is included [34••]. Going forward, while respecting patient privacy, it may be beneficial for dermatologists to include patient experiences in engaging educational videos in order to reach a larger audience [36].

Facebook

Facebook, founded in 2004, the earliest-founded platform of all mentioned in this study, has reached 2.9 billion monthly users, making it the largest social media platform available [37]. Users, which include individuals, groups, or organizations, can create a profile on which pictures,

videos, polls, and status updates can be posted and interacted with by followers or friends. Of note, Facebook purchased Instagram in 2012. Since the merger, each post on Instagram can be shared to Facebook, making “reels” a common post on Facebook accounts, as well [38]. There are numerous ways in which users have utilized Facebook’s features to educate those with dermatologic interests. “Groups,” both private and public, have been created to facilitate discussion and connect users online, many of which are created with the intent of sharing educational information. Many dermatology-related organizations and dermatologists have created accounts and share educational content regularly, as well. For example, the AAD Facebook account posts daily educational content and has over 180,000 followers [39].

The immense interest in seeking dermatology-related educational material on Facebook is demonstrated by the higher median engagement rate of educational dermatologic topics over other types of dermatology posts in both patient-centered or community related pages [40]. Although nuanced, familiarizing oneself with the platform and the ways in which it can be used to address the massive amounts of existing misinformation is crucial. As Facebook’s algorithm takes into account user engagement, content related to posts with little to no interaction are less likely to appear on a user’s news feed. Conversely, when posts are clicked on, liked, or commented on, this will increase the likelihood that similar topics will appear on a user’s news feed [41]. For dermatologists, learning to create interactive, engaging content will help to increase the reach of educational material being shared in the future, and therefore may lead to a more educated and healthy online population.

Existing Literature Assessing Effectiveness of Social Media-Based Education

While social media has been posited by many to facilitate an educational process given its large number in user engagement, existing literature to support this claim has been irresolute, given that measurable academic outcomes as a reflection of social media usage have yet to be documented [42]. Many studies have indicated that social media applications are an effective educational tool, both in the academic setting, and to increase the knowledge and awareness of the public [43]. These platforms have been implemented in higher education institutions as a medium to facilitate peer bonding among students and as a supplement to classroom education. In addition to enhancing the educational process and aiding collaboration among students, some studies have suggested that online domains may increase academic performance [44]. Importantly, one study indicated that educators do not support social media for educational purposes as

strongly as their students did [45]. While the literature supporting the efficacy of social media for educational purposes has been elusive, its capacity to be utilized in information dissemination is without question [46].

Ethical Considerations

Despite the many benefits of utilizing social media for educational purposes, several ethical considerations must be accounted for when navigating this new and complex landscape. Specifically, it is important to maintain patient privacy, provide factual, evidence-based information to fellow users, and state potential conflicts of interest [47•]. In addition, interpersonal communication on social media carries its own nuances. In hopes to guide physician conduct to those building an online presence, recommendations have been established by several physician-focused professional organizations, including the American Medical Association (AMA) and American College of Physicians (ACP) [48, 49].

Aside from protecting the standard demographic information when utilizing patient encounters for learning experiences, attention to detail regarding the images used is an important consideration of online dermatology education. Since the installation of The Health Insurance Portability and Accountability Act (HIPAA) of 1996, removal of identifiers when sharing patient information has been required [50]. However, in a survey from 2008 of 271 medical blogs, 3 blogs included recognizable patient photographs [51]. Pertaining to dermatology, unique tattoos and lesions on the skin can serve as identifiers and should not be posted when utilizing a patient experience as a learning opportunity [52].

Along with the advantage of social media serving as a tool to distribute content to the online masses comes an important consideration concerning the validity of the information being shared. The recent coronavirus “infodemic”, as referred to by the World Health Organization (WHO), has magnified the importance of sharing factual, evidence-based information online [53]. Amidst this era of rapid online information propagation, a systematic review from 2021 collected healthcare-related social media misinformation rates from 69 studies. In some instances, misinformation rates reached as high as 87% of content posted [54••]. Dermatologists, and physicians in general, should anticipate the content they post online to be heavily scrutinized by colleagues and fellow users. Keeping this in mind, misinformation rates may decline, and ideas rooted in evidence-based medicine would be cultivated and shared appropriately.

Although communication via social media lacks certain aspects of in-person interaction, it is important for physicians to maintain professional conduct when establishing an online presence. The AMA has published a “Code of Medical Ethics Opinion” in an effort to guide professional

Table 1 The active monthly users, commenting ability, percent utilization of social media by businesses, and direct video response capabilities for each platform

Platform	Active monthly users	Can posts be commented on?	Percentage of businesses using the platform [62]	Direct video response
Twitter	313 Million [14•]	Yes	84.4%	No
Instagram	2 Billion [23]	Yes	80.9%	No
TikTok	1 Billion [30]	Yes	0.8%	Yes
YouTube	2.3 Billion [36]	Yes	60.8%	No
Facebook	2.9 Billion [45]	Yes	93.7%	No

physician conduct online which establishes seven considerations [48]. In summary, physician online conduct should essentially resemble physician in-person conduct. It is the responsibility of the physician, and thus the dermatologist, to establish appropriate professional boundaries, maintain patient privacy, and hold colleagues accountable for sharing misinformation or unprofessional conduct [48]. The ACP has also published recommendations in which they state and describe five positions on multiple topics concerning physician social media use; these include confidentiality and privacy, separation of personal and professional content, patient communication, self-auditing, and awareness of potential future implications related to posted content [49]. Instances may occur in which current ideas contradict ideas previously remarked upon publicly and permanently, in the case of social media. In these cases, dermatologists are responsible for reflecting on past stances and holding themselves accountable.

Despite formal guidance from professional organizations to disclose conflicts of interest on social media, instances exist in which physicians have failed to do so [55]. A study from 2017 (7 and 4 years after the formal AMA and ACP publications, respectively) examined the Twitter accounts of 156 physicians with greater than \$1000 of financial conflicts of interest (FCOI) [55]. From this cohort, only 2 (1.3%) physicians disclosed existing FCOI [55]. By including disclosures, a more trusting relationship may be established between physician and consumer. Additionally, this dissuades physicians from participating in potentially unethical professional relationships and readers can interpret shared information with a critical lens [56]. Dermatologists should consider these disclosures when posting educational information that also endorses or promotes a product.

Social media platforms have taken some initiative to verify the identities of account users by providing a symbol to users which the platform attests are legitimate. For instance, in 2009, Twitter introduced the “Blue Check Mark” to discredit impersonator accounts [57]. Since then, the other four most popular platforms have followed suit with their own verified account designations [58–61]. The platform verification, in combination with the user listing their qualifications and credentials on their profile bio, can contribute to a more

trusting relationship between social media educator and consumer. Dermatologists should consider verifying their certification if they intend to use their social media accounts for educating the general public, allowing the general public to know they hold the certification to guide, diagnose, and treat skin afflictions.

Social media is increasingly used for educational purposes in the field of dermatology. In order for reliable dissemination of information, it is important for educators to be forthcoming, factual, and professional in their conduct. Through these practices, an educational relationship of trust between dermatologists and fellow social media users can be expanded upon.

Conclusion

As more social media platforms become available, the opportunities for physicians, and specifically dermatologists, also continues to increase. Currently, Twitter, Facebook, Instagram, TikTok, and YouTube all provide dermatologists the ability to hinder medical misinformation dissemination. While each platform is unique to its educational offerings (Table 1), each provides dermatologists with the capability to take an active role in educating the public with accurate and evidence-based dermatologic medicine. Dermatologists can now explore these options while considering the privacy and ethical principles of their position as a physician and build a more solid base of knowledge regarding healthy and diseased skin on social media.

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Compliance with Ethical Standards

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