Dermatology Practical & Conceptual

What do Patients Want to See on Social Media? Evidence From a Two-Year Experiment

Leire Barrutia[1,2], Jesús Vega-Gutiérrez[1,3], Alba Santamarina-Albertos[1,2]

1 Dermatology, Medicine and Toxicology Department, University of Valladolid, Valladolid, Spain
2 Dermatology Department, Clinical University Hospital of Valladolid, Valladolid, Spain
3 Dermatology Department, Río Hortega University Hospital, Valladolid, Spain

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Corresponding Author: Leire Barrutia, MD, Dermatology Department, Clinical University Hospital of Valladolid, Calle Rondilla Sta Teresa s/n, 47010 Valladolid, Spain. E-mail: leirebarrutia4@gmail.com

ABSTRACT

Introduction: Dermatological information on social media is dominated by misleading and potentially harmful content from nonexperts. Literature suggests that, to address this issue, dermatologists should develop an online presence. However, the successful presence of dermatologists on social media has been criticized for focusing on cosmetic dermatology and not representing the broad spectrum of the specialty.

Objectives: The aim of this study was to systematically analyze which dermatological topics interest the public most, and to find out whether it is feasible for a dermatologist to become influential on social media while presenting all dermatological topics equally.

Methods: The study was performed on an educational dermatology YouTube channel. The 101 videos published in a two-year period were divided into cosmetic (51 videos) and medical dermatology (50 videos). Student's t-test was conducted to determine whether there were significant differences in views. Medical dermatology videos were then classified into three categories: Acne, facial dermatoses (excluding acne) and other dermatological diseases. A Kruskal-Wallis test was used to compare these three categories and cosmetic dermatology.

Results: When comparing cosmetic and medical dermatology, no significant differences were found. When comparing the four categories, cosmetic dermatology and acne were found to generate significantly more views that other dermatological diseases.

Conclusions: The public seems to be particularly interested in cosmetic dermatology and acne. This might make it challenging to become successful on social media while presenting a balanced portrayal of dermatology. However, focusing on popular topics can provide a real chance to be influential and protect vulnerable people from misinformation.

Introduction

Dermatological information on social media is dominated by misleading and potentially harmful content from nonexperts [1,2]. An analysis of Instagram hashtags [3] found that most top dermatology-related posts are made by individuals without formal dermatology training. A study [4] on the quality of YouTube videos about psoriasis classified 63% of videos as misleading or dangerous. Many other studies [5-8] have noted a vast amount of inaccurate or low-quality dermatological information on different social media platforms.

This problem primarily affects vulnerable people, such as adolescents and young adults, who are the most active users of these platforms [2,9,10]. It has been suggested that in order to address this issue, dermatologists should develop an online presence [5,11-13]. However, dermatologists' participation in social media is a new phenomenon, and the extant literature offers little insight into how dermatologists can develop a successful social media presence. One exception is a study by Sierro et al. [11], which identified the top 10 dermatology influencers on social media and found that 83% of the content they produced focused on cosmetic dermatology. According to Sun et al. [12], this finding might lead to the public perception that dermatologists spend the majority of their time treating conditions with modest morbidity, which is inconsistent with reality. They highlighted the need to dispel this misconception and create content on a wide variety of dermatological diseases from both clinical and histological perspectives [12]. Guzman and Barbieri [1] shared this concern and noted that the presence of dermatologists on social media is limited in comparison with non-dermatologist sources, which are prone to bias and misinformation. Similarly, Green and Britten [14] argued that dermatologists should create content showcasing, in a balanced manner, the broad spectrum of dermatology by presenting interesting medical cases, dermoscopic and histologic images, or commentaries on medical literature.

Therefore, the successful presence of dermatologists on social media remains limited and has been criticized for focusing on cosmetic dermatology as opposed to accurately representing the role of dermatologists [1,12,13]. In this context, this study examined a research question that has not been systematically addressed in the literature: Is it feasible for a dermatologist to develop a relevant presence on social media while equally representing all dermatological topics?

Objectives

The emergence and prevalence of social media is a relatively new and unknown phenomenon. Probably the best way to understand new phenomena is to explore them as an insider [14]. Consequently, there is a need for insider research exploring how the public reacts to the presentation of various dermatological topics by dermatologists. Accordingly, the aim of this research is to determine from the inside which dermatological topics social media users find most interesting. This analysis will allow us to deduce whether it is feasible for a dermatologist to become influential on social media while presenting all dermatological topics with equal prominence, as suggested from a conceptual perspective [1,12,14].

Methods

Study Design

Most previous contributions on dermatology in social media have relied on conceptual developments and secondary sources. This is distinct from the tradition of dermatologic research, which has mostly relied on primary sources (i.e., everyday practice). The present study is based on the direct experience of a dermatologist on social media over a two-year period.

In October 2019, one of the authors launched an educational dermatology YouTube channel. The channel was designed to avoid the risks and ethical challenges that social media involves for dermatologists [15]. The channel did not include sponsored or personal content, and videos followed the DISCERN quality criteria [9]. References to relevant scientific literature were provided, individual consultations were not answered, and viewers were encouraged to consult a dermatologist. While commercial products were shown because of strong demand from subscribers, product assessments relied on effectiveness. No commercial agreements were established. A new video was launched weekly, and following a two-year period, the channel had over 134,000 subscribers and 5.5 million views. In total, 101 videos were posted about a wide variety of dermatological topics including acne and acne scars, rosacea, melasma, hidradenitis suppurativa, psoriasis, vitiligo, hair loss, atopic dermatitis, seborrheic dermatitis, nevi, sun protection, melanoma, basal cell carcinoma, squamous cell carcinoma, polymorphous light eruption, hyperhidrosis, folliculitis, laser hair removal, keratosis pilaris, post-inflammatory hyperpigmentation, dermatological treatments such as benzoyl peroxide and isotretinoin, skin type, medical peelings, botulinum toxin, and active ingredients in cosmetics.

All videos were presented by the same dermatologist in the same setting and followed a similar approach. They were also similar in terms of duration and aesthetic design. We can assume, therefore, that the differences in the average daily video views were mostly due to varying public interest in the topics covered.

Data Collection and Overview of Channel Analytics

Data were collected from YouTube Studio, a platform provided by YouTube to help content creators manage their

channels. YouTube Studio provides key channel analytics to better understand video and channel performance. This research focuses on a specific metric: average daily views (i.e., views/days since upload). Other metrics provided by YouTube Studio include subscribers, watch time (hours), likes, dislikes, and shares. All videos posted from 25 October 2019 to 25 October 2021 were included in the study.

Statistical Analysis

Statistical analysis was performed using Stata 16 (StataCorp LLC). We categorized the videos according to the topic covered and analyzed whether there were significant differences in average daily views depending on the video category.

To categorize the videos under study, we followed a two-step approach. In the first step, we grouped the videos into two broad categories: cosmetic dermatology (51 videos) and medical dermatology (50 videos). We conducted a Student's *t*-test to determine whether there were significant differences between the views counted for both types of videos. Despite the absence of normality in our data, the relatively large number of observations in both categories (n = 50 and n = 51, respectively) led us to use the parametric Student's t-test [16].

In the second step, we created several subgroups among the medical videos. Subcategorization was performed because it was apparent that there was great variance in the views within this category. Specifically, we divided the medical videos into three subgroups: acne; facial dermatoses, excluding acne; and other dermatological diseases. This arrangement was based on our empirical observations. Overall, we observed that acne and, to a lesser extent, other facial dermatoses, such as rosacea and melasma, generated more views than other dermatological diseases. This may be because self-care is erroneously considered feasible for these conditions. Additionally, facial dermatoses are highly visible, with substantial social repercussions [17-19]. We established an individual category for acne because of its particularly high prevalence and because it markedly affects adolescents and young adults, who comprise YouTube's largest user base [2,9,10]. We then performed a non-parametric Kruskal-Wallis rank test to compare the three medical categories and cosmetic videos. This non-parametric test was chosen due to the absence of normality in our data and the relatively scarce number of videos in some categories [16].

The videos had been published on different dates, which implies that they had had different opportunities to be viewed. Therefore, the videos were not compared in terms of total views but in terms of average daily views [20].

Results

Videos on acne had the highest average daily views (268.66), followed by those on cosmetic dermatology (255.49) and other facial dermatoses (160.18). Videos on other dermatological diseases had the lowest average daily views (91.61).

Student's *t*-test determined that there were no significant differences between views of cosmetic dermatology and medical dermatology videos, even though the cosmetic videos had more views on average (p = .1511).

The Kruskal-Wallis rank test, which compared the three medical categories and cosmetic videos, showed that videos on acne and cosmetic dermatology received significantly more views than those on other dermatological diseases (p = .0028 and p = .0005, respectively). There was a marginally significant difference (p = .0533) between views of videos on other facial dermatoses and those on other dermatological diseases. No significant differences were found between cosmetic dermatology and acne (p = .2392), cosmetic dermatology and other facial dermatoses (p = .5493), and acne and other facial dermatoses (p = .1266) (see Table 1).

While this research focused on comparing average daily video views, other engagement analytics may add information about the qualitative perceptions of the public on a YouTube channel conducted by a dermatologist. The two-year period under study led to 221,993 likes, 47,162 shares, and 17,815 comments (see Table 2).

To evaluate the degree of goodness of these channel analytics, we used a study on 104,899 YouTube accounts and classified them as poor, average, or good [21]. Metrics scoring at the 60th percentile or higher were considered good. Specifically, the study considered the following engagement analytics:

1. Like-to-dislike rate (i.e., percentage of number of likes over the sum of likes and dislikes);
2. Views-to-subscriber ratio (i.e., number of views over number of subscribers);
3. Comments-to-views rate (i.e., percentage of users who have watched the video and commented on it); and
4. Likes-to-view rate (i.e., percentage of users who have watched the video and explicitly stated that they liked it).

When these metrics were applied to the channel, we observed that in all cases, the channel was above the threshold level required to be considered good. First, the like-to-dislike rate was 98.6% (> 97.4%). Second, the views-to-subscriber ratio was 41.01 (> 33.1). Third, the comments-to-views rate was .32% (> .04%). Lastly, the like-to-view rate was 4.03 (> 3.72). Most comments were highly positive. Many users recognized the value of the knowledge conveyed through the channel and were highly appreciative that a dermatologist had offered evidence-based knowledge on social media.

Table 1. Types of videos: Testing for significant differences.

	Videos (101)	Views per video since uploaded		Average daily views per video since uploaded	
Type of video		Mean	SD	Mean	SD
Cosmetic dermatology	51	61,639.94	71,612.31	255.49	32.54
Medical dermatology	50	46,627.06	44,008.43	181.06	173.69
Acne	21	70,828.95	50,304.45	268.66	201.94
Other facial dermatoses (excluding acne)	11	49,641.82	30,999.87	160.18	115.60
Other dermatological diseases	18	16,549.17	18,779.03	91.61	113.51
Testing for significant differences					
t-test			***t***	**d.f.**	***p*-value**
Cosmetic dermatology vs. Medical dermatology			-1.4467	77.355	.1511
Kruskal-Wallis rank test			**chi-sq.**	**d.f.**	***p*-value**
Four groups (cosmetic dermatology, acne, other facial dermatoses excluding acne, other dermatological diseases)			13.884	3	.0031**
Cosmetic vs. Acne			1.385	1	.2392
Cosmetic vs. Other facial dermatoses			.359	1	.5493
Cosmetic vs. Other dermatological diseases			8.956	1	.0028**
Acne vs. Other facial dermatoses			2.333	1	.1266
Acne vs. Other dermatological diseases			12.007	1	.0005**
Other facial dermatoses vs. Other dermatological diseases			37.375	1	.0533

Notes: Period: 25 October 2019–25 October 202. SD: Standard deviation; *t*-test: Two-sample *t*-test with unequal variances; d.f.: degrees of freedom.

Table 2. Overview of channel analytics.

Variable	Total	Mean	SD	Min.	Max.
Views	5,504,165	54,207.82	59,750.06	939	399,436
Subscribers	134,208	1167.54	1800.94	4	13,111
Watch time (hours)	463,840	4,573.17	5,539.08	56	34,079
Likes	221,993	2,182.53	2,126.77	50	12,439
Dislikes	3,043	29.93	40.50	0	324
Shares	47,162	465.30	521.58	6	3182
Comments	17,815	175	141.47	3	771

Notes: Observations (videos) = 101. Period: 25 October 2019–25 October 2021. SD: Standard deviation. Min: Minimum. Max: Maximum.

Discussion and Conclusions

Our findings show that public concerns focus on acne and cosmetic dermatology and that viewers are not equally interested in all dermatological topics. Therefore, it might be difficult to become successful on social media and ensure visibility while presenting a balanced portrayal of our specialty. This represents an important challenge for dermatologists because some topics, despite being less popular, need to be addressed due to their importance, such as skin cancer and its prevention. The literature shows that most videos about tanning on YouTube portray it positively, and that there are more advertisements for tanning salons than the total number of videos portraying the dangers of tanning [22-24]. Therefore, it is essential that dermatologists share evidence-based information on appropriate sun safety attitudes to educate the population and fight misinformation [25-27]. Several studies [26,28,29] have shown that social media can be a cost-effective way to disseminate awareness on this topic, and dermatological associations, such as the National Academy of Sciences' Interdisciplinary Perspectives on Skin Cancer, have concluded that there is a need to promote sun protection in children and young adults on these platforms [30].

Other examples of non-popular dermatological diseases that could be addressed on social media include chronic inflammatory skin conditions, such as psoriasis or hidradenitis suppurativa. Several studies [24,31,32] have shown that

patient education through social media improves the quality of life of patients with these diseases. Consequently, dermatologists face the difficult challenge of finding a balance between prioritizing popular topics and not disregarding others that may have an important impact on people's well-being.

While keeping this balance in mind, we believe that prioritizing the topics that people want to see (i.e., acne and cosmetic dermatology) can have the next three benefits for dermatologists and society as a whole: (1) ensuring visibility, (2) having a positive, evidence-based influence on dermatological culture and health-related decisions, and (3) having a real option to convey a complete portrayal of dermatological topics (albeit with unequal prominence).

First, to ensure visibility, YouTube videos must be promoted by the YouTube algorithm. While the operation of the algorithm is a black box, it seems to favor content that is viewed more frequently by users (i.e., what users, through their behavior, have revealed they want to see) [21]. This mechanism makes it extremely difficult to garner public influence while presenting topics that the public does not usually search for on YouTube.

Second, focusing on what people want to see provides dermatologists with a real opportunity to have a positive, evidence-based influence on people's culture and behavior. Comments on videos about popular topics illustrate that they can help foster important dermatological culture that extends beyond the focal topic: "Since watching your videos, I use sunscreen regularly." In particular, focusing on acne can lead to increased visibility among adolescents [9,10]. This can facilitate the dissemination of important dermatological habits, such as sun protection, from a young age, aiding in skin cancer prevention [26,29,33,34]. Therefore, focusing on popular topics can be a way to convey important messages about other important dermatological issues. Schneiderbanger et al. [35] presented an interesting example of how dermatologists' concerns about a disease (skin cancer) can be associated with the main interests of young females (skin aging). Since the prevention of skin aging seems to be an important concern among young females, a dermatologist could broadcast a video emphasizing the association between tanning and premature skin aging, thus helping discourage this behavior and, therefore, contributing to reducing the prevalence of skin cancer [35]. Consequently, dermatologists can create content about topics that concern users and use it to convey additional skin health advice in a compelling way.

Third, focusing on people's interests serves to gain subscribers and build loyalty [2]. Loyal subscribers tend to watch more channel videos, including those on less frequently searched dermatological content. Some video comments are illustrative of this: "I watch all your videos," "I do not have vitiligo, but the video is interesting." Therefore, videos on less popular topics receive more views than they would otherwise, thereby increasing the likelihood that the YouTube algorithm will promote them to other users. Consequently, focusing on popular topics can, in the end, facilitate the dissemination of accurate knowledge about the broad spectrum of dermatology.

Our results show an overall preference for topics related to facial dermatological issues. The commonality among acne, cosmetic dermatology, and other facial dermatoses is that they affect the face. Views on videos about these topics are significantly higher than those on videos about dermatological diseases that do not normally affect this body area, such as psoriasis, hyperhidrosis, or hidradenitis suppurativa. Because the face is the most visible body part, previous studies have found that skin diseases in this area can have a remarkable effect on patients' self-esteem and a profoundly negative impact on quality of life [17-19]. As a consequence, it seems logical that users search for these topics more than for less noticeable dermatological diseases.

Previous research suggests that social media allows dermatologists to do social work of great significance, disseminating an evidence-based dermatological culture and influencing the habits of the most vulnerable people [10,25,26,29,33,36,37]. For this reason, many authors have encouraged dermatologists into more active participation on these platforms [5,11-13]. Previous literature on the topics that dermatologists should present on social media is very scarce, but it has been suggested in the context of other aspects of social media content that dermatologists should adapt their content to the population. For instance, Güder and Güder [5] focused on the language used and highlighted that in order to increase visibility, dermatologists should use words that are familiar to patients instead of technical terms. We consider that focusing on popular topics can be a successful strategy that follows a similar approach.

While dermatologists must share information on important topics, such as skin cancer, even at the expense of losing visibility, our findings indicate that prioritizing the goal of a balanced portrayal of dermatology is difficult to achieve in the real context of social media. This is so because meeting this goal implies trying to lead social media users to focus their attention on topics in which they have no or little interest. Disregarding this balance in favor of popular content, without completely neglecting other relevant dermatological topics, might be worthy for dermatologists in terms of accomplishing a very relevant social mission.

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