

# Global skin diseases on Instagram hashtags

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## Abstract

Recently named one of the most influential phone applications, Instagram continues to grow in popularity [1]. Instagram consists of images and video posts, making it ideal for education and communication within the visual field of dermatology. In this study, we seek to determine the presence of dermatology-related content with regard to the most common cutaneous diseases of the world. We searched the account types and hashtags associated with the eight most common skin diseases globally as identified by the Global Burden of Disease (GBD) study by Hollenstein et al.: eczema, psoriasis, acne, pruritus, alopecia, decubitus ulcer, urticaria, and scabies [9]. The majority of Instagram accounts included patient experiences (n=73), private accounts (n=52), and disease advocacy and awareness groups (n=20), (total n=221). We further investigated over 2 million skin disease hashtags. The greatest numbers of hashtags were the following: #acne (n = 1,622,626), #alopecia (n = 317,566), and #eczema (n = 196,115). Our results demonstrate that patients interact with one another through Instagram. As social networking platforms become more frequently used as a source of information for patients and patient support, medical professionals must gain awareness of content available through Instagram and consider it as a means to educate the public.

*Keywords: Instagram, dermatology, social media, hashtag, skin diseases*

## Introduction

Instagram is a social networking platform that aims to connect users who share photographs and videos publicly or privately. It uses hashtags to identify subjects or messages on a specific topic. In 2015, Instagram was the top-rated application on Mashable's list of "The 100 best iPhone apps of all time" [1]. In the United States, 77.6 million people use Instagram [2]. Users are predominantly younger than 35 years with an equal mix of males and females [2]. Furthermore, the vast majority of Instagram users reside outside the United States [2]. Thus, Instagram serves as a means to inform, connect, and educate the public at the global level.

The presence of dermatology-related issues in social media has been reported in the literature [3-8]. In 2014, Karimkhani et al. investigated the presence of professional dermatology associations and patient advocacy groups on Instagram [9]. The majority of Instagram users consist of private offices and cosmetic products [9]. Additionally, a large number of hashtags relate to cutaneous disease, suggesting that patients frequently share personal experiences through Instagram [9]. In light of these findings, our study aims to quantify the presence of dermatology-related content with regard to the most common cutaneous diseases in the world.

## Methods

Data were collected by authors TB and KR on April 26, 2016. The eight most common skin diseases globally as identified by the GBD study [9] were searched including: eczema, psoriasis, acne, pruritus, alopecia, decubitus ulcer, urticaria, and scabies. Both hashtags

and account types were searched for each skin disease. Searches for hashtags included the disease names used by the medical community and the colloquial terms for the disease. For example, both “urticaria” and “hives” were searched. The most recent 20 posts for each hashtag were viewed by TB and KR to determine their relevance to each cutaneous disease. Those not pertaining to a dermatologic condition were not included in the study.

Quickagram, a web interface, identified user accounts relevant to the disease of interest. This web interface displayed accounts that mentioned the cutaneous disease in their names or within their account descriptions. Accounts that did not post material relevant to dermatology were not included in the study. Accounts were then categorized by authors TB and KR into the following types: 1) clinical trial, 2) disease advocacy and awareness, 3) disease charity and donation, 4) disease support group, 5) medical professional, 6) patient experience, 7) private account, 8) product. The following criteria were used to determine account category:

- 1) Clinical trial - Provides links to participation opportunities in clinical trials
- 2) Disease advocacy and awareness – Posts facts about the dermatologic disease to educate patients or the general public
- 3) Charity and donation - Includes events for fundraising or platforms for donations
- 4) Disease support group - Supports followers by offering words of kindness and posting success stories
- 5) Medical professional – Healthcare professional that educates regarding cutaneous disease and/or posts advertisements for their clinic
- 6) Patient experience – Posts pictures and/or information regarding his or her experience with cutaneous disease
- 7) Private account – Those that are not accessible to the general public

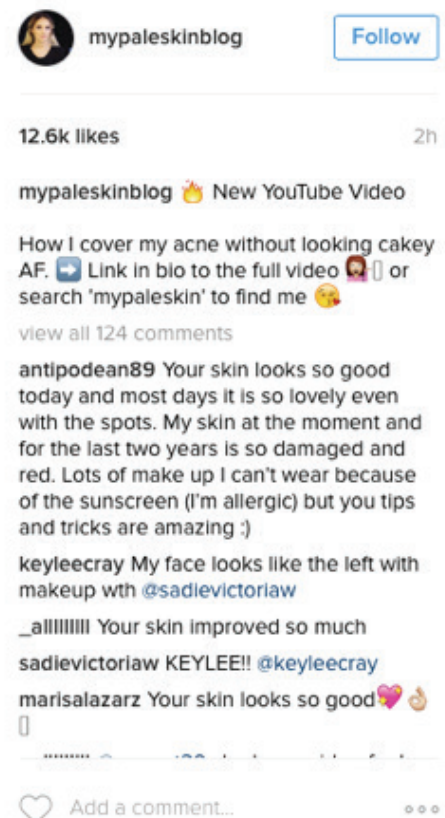


Figure 1. Example of the most popular #acne post.

**Table 1.** Type of Instagram account and the total number of accounts on April 26, 2016.

Account Type	Total Number
Clinical Trials	8
Disease Advocacy and Awareness	20
Disease Charity and Donations	4
Disease Support Group	17
Medical Professional	3
Patient Experience	72
Private Account	52
Product	45

**Table 2.** Cutaneous disease-related hashtags and the total number of posts on April 26, 2016.

Disease	Other terms	Total Number of Posts
Eczema	Atopic dermatitis	196,115
Psoriasis	-	112,883
Acne	-	1,622,626
Pruritus	Itchy skin	3,823
Alopecia	Hair loss	317,566
Decubitus ulcer	Pressure ulcer Bed sore Pressure sore	2,841
Urticaria	Hives	35,402
Scabies	Sarcoptic mange	4,329

8) Product - Advertised topical products, herbs, diets, and supplements available for the cutaneous disease

## Results

We found a total of 221 accounts associated with the eight most common global cutaneous diseases. The following account types comprised the majority of Instagram accounts: patient experiences (n=73), private account (n=52), and product (n=45). Results are shown in **Table 1**. Patient experience accounts commonly included tips and tricks to counter cutaneous disease and photographs depicting patients' successes and hardships. Posts on products included photographs of the product itself as well as before and after photographs of patients. Only three accounts were run by medical professionals posting about acne vulgaris, psoriasis, and urticaria. These medical professionals posted about the etiology, pathophysiology, and medications used to treat

cutaneous diseases for which their account was dedicated.

There were over 2 million posts related to the cutaneous diseases searched. The highest number of posts were found when searching #acne (n = 1,622,626), #alopecia (n = 317,566), and #eczema (n = 196,115) (**Figure 1**). **Table 2** illustrates the number of posts related to the eight cutaneous diseases searched and their alternative search terms.

## Discussion

Our results demonstrate that patients are sharing, engaging, and connecting with one another. As social networking platforms become more frequently used as a source of information for patients and patient support, medical professionals must gain awareness of the content that is widely available. They should also consider utilizing media such as Instagram

as a means to educate and inform the public. In 2014, Karimkhani et al. [8] reported that while a large number of dermatology-related hashtags exist, Instagram lacks the presence of dermatology journals and other professional organizations. The number of hashtags has dramatically increased since Karimkhani et al. researched this topic. In 2014, #acne and #eczema had 303,453 and 22,998 posts respectively. We determined that these numbers have significantly increased to 1,622,626 (#acne) and 196,115 (#eczema). However, there is still a relative paucity of involvement from dermatology organizations and professionals.

## Conclusion

Patients are interacting through social media more than ever. This paper demonstrates an underutilized opportunity to connect with and educate a large number of patients looking for support regarding their experience with dermatologic disease.

## References

1. Mashable.com "The 100 best iPhone apps of all time" Published 8 December 2015. Accessed May 1, 2016.
2. Digital Marketing Ramblings. (May 2015) By the numbers: 160+ interesting Instagram statistics. Available at: <http://expandedramblings.com/index.php/important-instagram-stats/>. Accessed April 28, 2016.
3. Amir, Mahsa, et al. "Social networking sites: emerging and essential tools for communication in dermatology." *JAMA dermatology* 150.1 (2014): 56-60. [PMID: 24196212]
4. Karimkhani, Chante; Gamble, Ryan; & Dellavalle, Robert P. (2014). Social media impact factor: the top ten dermatology journals on facebook and twitter. *Dermatology Online Journal*, 20(4). doj\_22327. Retrieved from: <http://escholarship.org/uc/item/4rb3w037>. [PMID: 24746295]
5. Correnti, Christina; Boyers, Lindsay; Karimkhani, Chante; Roth, Gretchen; & Dellavalle, Robert P. (2014). Dermatology on Tumblr. *Dermatology Online Journal*, 20(5). doj\_22642. Retrieved from: <http://escholarship.org/uc/item/3nq5m9g7>. [PMID: 24852781]
6. Whitsitt, Jacob; Mattis, Daiva; Hernandez, Melia; Kollipara, Ramya; & Dellavalle, Robert P. (2015). Dermatology on Pinterest. *Dermatology Online Journal*, 21(1). doj\_25442. Retrieved from: <http://escholarship.org/uc/item/7dj4267p>. [PMID: 25612127]
7. Boyers, Lindsay N; Quest, Tyler; Karimkhani, Chante; Connett, Jessica; & Dellavalle, Robert P. (2014). Dermatology on YouTube. *Dermatology Online Journal*, 20(6). doj\_22852. Retrieved from: <http://escholarship.org/uc/item/5037g18h>. [PMID: 24945641]
8. Karimkhani, Chante; Connett, Jessica; Boyers, Lindsay; Quest, Tyler; & Dellavalle, Robert P. (2014). Dermatology on Instagram. *Dermatology Online Journal*, 20(7). doj\_23129. Retrieved from: <http://escholarship.org/uc/item/71g178w9>. [PMID: 25046455]
9. Hollestein, Loes M., and Tamar Nijsten. "An Insight into the Global Burden of Skin Diseases." *Journal of Investigative Dermatology* 134.6 (2014): 1499-1501. [PMID: 24825057]