Acne Treatment: Analysis of Acne-Related Social Media Posts and the Impact on Patient Care

Brittany Urso, BS; Katelyn M. Updyke, BS; Renee Domozych, MD; James A. Solomon, MD, PhD; Ian Brooks, PhD; Vernon Burton, PhD; Robert P. Dellavalle, MD, PhD, MSPH

PRACTICE **POINTS**

- Social media content can influence patients' perceptions of their disease and serve as a modality to acquire medical treatments, though the source often is unknown.
- This study aimed to identify sources of acne-related social media posts to determine communication trends to gain a better understanding of the potential impact social media may have on patient care.
- Due to the potential for illicit marketing of prescription acne medications across multiple social media platforms, it is important to ask your patients what resources they use to learn about acne and offer to answer any questions regarding acne and its treatment.

Many patients use social media as a source of medical information on dermatologic diseases. Social media offers accessible methods of communicating with physicians, other patients, and pharmacies. The information gathered through social media posts has the potential to influence patients' views of their conditions and treatment options, though the source often is unknown. This systematic review examined the content and source of social media posts identified using the search terms *acne* and *treatment* across all social media platforms available through a commercial social media data aggregating software (Crimson Hexagon) from May 2008 to May 2016. The goal of this study was to identify sources of acne-related social media posts to determine communication trends to gain a better understanding of the potential impact social media may have on patient care.

Cutis. 2018;102:41-43.

Social media has become a prominent source of medical information for patients, including those with dermatologic conditions.[1,2] Physicians, patients, and pharmaceutical companies can use social media platforms to communicate with each other and share knowledge and advertisements related to conditions. Social media can influence patients' perceptions of their disease and serve as a modality to acquire medical treatments.[3] Furthermore, social media posts from illicit pharmacies can result in patients buying harmful medications without physician oversight.[4,5] Examination of the content and sources of social media posts related to acne may be useful in determining those who are primarily utilizing social media and for what purpose. The goal of this systematic review was to identify sources of acne-related social media posts to determine communication trends to gain a better understanding of the potential impact social media may have on patient care.

Methods

Social media posts were identified (May 2008 to May 2016) using the search terms *acne* and *treatment* across all social media platforms available through a commercial social media data aggregating software (Crimson Hexagon). Information from relevant posts was extracted and compiled into a spreadsheet that included the content, post date, social media platform, and hyperlink. To further analyze the data, the first 100 posts on acne treatment from May 2008 to May 2016 were selected and manually classified by the following types of communication: (1) patient-to-patient (eg, testimonies of

Ms. Urso, Ms. Updyke, and Dr. Solomon are from College of Medicine, University of Central Florida, Orlando. Dr. Solomon also is from the College of Medicine, University of Illinois, Urbana, and Ameriderm Research, Ormond Beach, Florida. Dr. Domozych is from the Mayo Clinical Graduate School of Medical Education, Rochester, Minnesota. Dr. Brooks is from the School of Information Sciences, University of Illinois, Champaign. Dr. Burton is from the Department of History, Clemson University, South Carolina. Dr. Dellavalle is from Denver VA Medical Center, Colorado, and the College of Medicine, University of Colorado, Denver.

The authors report no conflict of interest.

This study was presented in part at the 76th Annual Meeting of the Society for Investigative Dermatology; April 26-29, 2017; Portland, Oregon.

Correspondence: Brittany Urso, BS, University of Central Florida College of Medicine, 6850 Lake Nona Blvd, Orlando, FL 32827 (Brittany.Urso@knights.ucf.edu).

patients' medical experiences); (2) professional-to-patient (eg, clinical knowledge or experience provided by a medical provider and/or cited article in reference to relevant treatments); (3) pharmaceutical company–to-patient (eg, information from reputable drug manufacturers regarding drug activity and adverse effects); (4) illicit pharmacy–to-patient (eg, pharmacies with advertisements calling patients to buy a drug online or offering discrete shipping without a prescription)[4,5]; or (5) other-to-patient (eg, posts that did not contain enough detail to be classified).

Results

Hundreds of thousands of social media posts discussing acne treatment were identified over the 8-year study period (Figure 1). The social media data aggregator extracted posts from various blogs, website comment

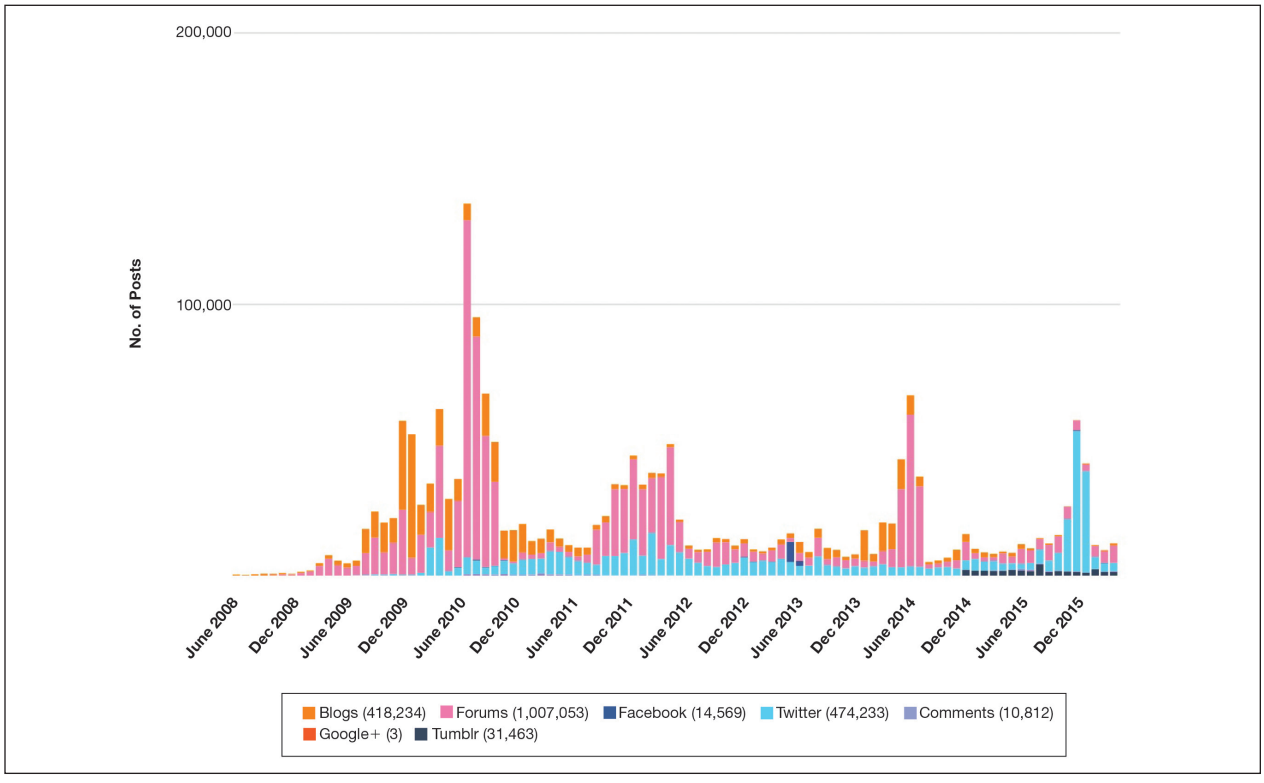

FIGURE 1. Frequency of social media posts on acne treatment from June 2008 to April 2016. Social media platforms included blogs, forums, Facebook, Twitter, Google+, Tumblr, and website comment sections.

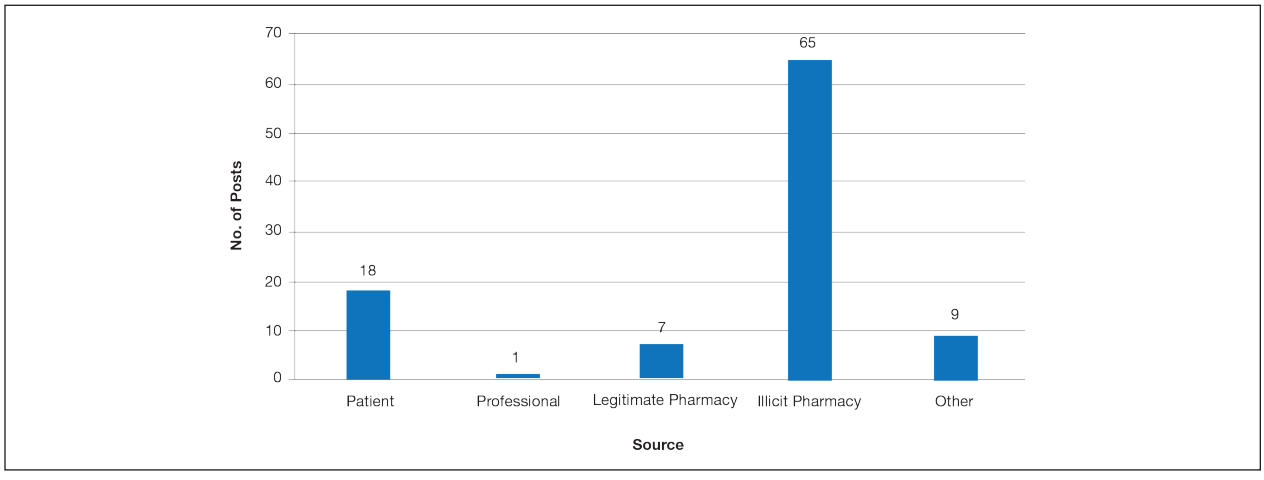

FIGURE 2. Frequency of 100 acne-related social media posts by communication source category.

sections, and online forums, as well as major social media platforms (ie, Facebook, Twitter, Google+, Tumblr). The first 100 posts selected for further analysis included 0 from 2008, 6 from 2009, 36 from 2010, 15 from 2011, 7 from 2012, 8 from 2013, 12 from 2014, 11 from 2015, and 5 from 2016. From this sample, 65 posts were considered to have an illicit source; conversely, 18 posts were from patients and 7 posts were from pharmaceutical companies (Figure 2).

Comment

This study demonstrated that discussion of acne treatment is prevalent in social media. Although our research underrepresents the social media interest in specific acne treatments, as only posts mentioning the terms *acne* and *treatment* were evaluated to gain insights into how social media platforms are being used by individuals with cutaneous disease. As such, even with this potential underrepresentation, our study demonstrated a high incidence of illicit marketing of prescription acne medications across multiple social media platforms (Figure 2). The sale of dermatologic pharmaceuticals (eg, isotretinoin) without a prescription is recognized by the US Government as a problem that is rapidly growing.[4,5] Illicit pharmacies pose as legitimate pharmacies that can provide prescription medications to consumers without a prescription.[5,6] The fact that these illicit pharmacy–to-patient posts were the most abundant in our study may speak to their relative success on social media platforms in encouraging patients to purchase prescription medications without physician oversight. These findings should concern health care providers, as the procurement of prescription medications without a prescription may put patients at risk.

REFERENCES

1. Alinia H, Moradi Tuchayi S, Farhangian ME, et al. Rosacea patients seeking advice: qualitative analysis of patients' posts on a rosacea support forum. *J Dermatolog Treat.* 2016;27:99-102.
2. Karimkhani C, Connett J, Boyers L, et al. Dermatology on Instagram. *Dermatology Online J.* 2014:20. pii:13030/qt71g178w9.
3. Smailhodzic E, Hooijsma W, Boonstra A, et al. Social media use in healthcare: a systematic review of effects on patients and on their relationship with healthcare professionals. *BMC Health Serv Res.* 2016;16:442.
4. Lagan BM, Dolk H, White B, et al. Assessing the availability of the teratogenic drug isotretinoin outside the pregnancy prevention programme: a survey of e-pharmacies. *Pharmacoepidemiol Drug Saf.* 2014;23:411-418.
5. Lott JP, Kovarik CL. Availability of oral isotretinoin and terbinafine on the Internet. *J Am Acad Dermatol.* 2010;62:153-154.
6. Mahé E, Beauchet A. Dermatologists and the Internet. *J Am Acad Dermatol.* 2010;63:908.