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Dermatology without Dermatologists? Analyzing Instagram influencers with dermatology-related hashtags

Varun Ranpariya, BA,¹ Brian Chu, BS,² Ramie Fathy, AB,² Jules B. Lipoff, MD³

(1) Rutgers Robert Wood Johnson Medical School, Piscataway, NJ

(2) Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA

(3) Department of Dermatology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA

Corresponding author:

Jules B. Lipoff, MD

Department of Dermatology, University of Pennsylvania

Penn Medicine University City

3737 Market Street, Suite 1100

Philadelphia, PA 19104

Clinic Phone: 215-662-8060

Clinic Fax: 215-243-3284

Email: jules.lipoff@pennmedicine.upenn.edu

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The general public is increasingly turning to social media for health information, with Instagram representing an especially popular and growing forum for education and support communities.¹ However, serious concerns remain about reliability and accuracy. In this study, we sought to characterize the credentials of dermatology influencers on Instagram, that is, accounts creating the most popular dermatology content.

This study was institutional review board exempt. Content coding involved analysis of eleven hashtags, consisting of the top 5 dermatology-related diagnoses, top 5 dermatology-related procedures, and #dermatology (Supplemental Table 1).^{2,3} These hashtags were queried on Instagram for 14 days. The “Top 9” or the most popular posts for each hashtag, were recorded daily, totaling 1368 posts. Demographic data for associated accounts were recorded. As there are no established criteria for labeling influencers, we used two different sets of criteria to define influencer status. The first criteria required that an account have 40,000 followers to be considered an influencer. Under the second criteria, accounts were considered influencers if they were featured in the “Top 9” 5 or more times, including multiple “Top 9” features of the same post on separate days. We then manually characterized account type by medical occupation/credentials, presence of promotional content, and location (Table 1).

Over 300,000 dermatology-tagged posts were created during the study period. Of the 1,368 “Top 9” posts recorded, there were 649 unique posts by 420 unique accounts. One hundred-six accounts had $\geq 40,000$ followers, and 76 accounts were featured ≥ 5 times in the “Top 9”, with a total of 146 accounts meeting one or both influencer criteria. Healthcare professionals/businesses constituted 38% (55/146) of influencers, most of which (73%, 40/55) had occupation/credentials listed on their account page. Seven accounts (5%, 7/146) were operated by dermatologists (6/7 were board-certified). Most (87%, 48/55) healthcare influencers

promoted their personal products and services (self-promotion). Overall, 32% (46/146) of all influencers had promotional content (any non-personal promotional disclosures) and 61% (89/146) had self-promotional content (any disclosure of their own products/services/brand). Influencer account characteristics varied by the criteria used to identify influencers (Table 2).

Board-certified dermatologists appear to comprise a small fraction (4%, 6/146) of Instagram accounts with popular dermatology content. Most influencers (93%, 135/146) featured self-promotional posts or directly promoted brands, products, or services. This promotional content may create conflicts of interest that should be explicitly disclosed and addressed. Furthermore, account credentials were often unmentioned (71%, 104/146, of all influencers and 27%, 15/55, of healthcare influencers).

Medical information on social media should come from reliable sources, as patients use social media to join communities and make treatment decisions.^{4,5} Given little regulation in these arenas, medical information from unqualified sources may result in misguided management or unnecessary treatment. Thus, Instagram may represent an unrealized opportunity for dermatologists and dermatology organizations to share quality educational content to counter potentially biased promotional content and misinformation. Moreover, dermatologists should anticipate that many patients are using Instagram as a source of dermatologic information and be prepared to advise on awareness of promotional interests and qualifications on social media.

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88 TABLES89 **Table 1.** Definitions of characterizations of Instagram influencer accounts.

Account Characterization		Definition
Type of Account	Business	Non-healthcare accounts promoting their own products or services (e.g. beauty products, make-up, supplements)
	Healthcare Business or Professional	Business or personal accounts of healthcare professionals or businesses (including physicians, nurses, estheticians, etc.)
	Personal	Non-disease centric, non-healthcare professional accounts of individuals
	Patient	Accounts about a personal journey with a disease
	Disease Advocacy/Charity	Non-personal accounts promoting disease advocacy or a charity's social media account.
	Educational or Informational	Only educational or informational content
	Other	Does not meet any other characterization criteria
Credentials	None	No explicit credentials listed in account biography
	US Physician	Non-dermatologist US physician
	Board-Certified	US board-certified non-dermatology physician*
	Self-Described Only	Self-described US physician, but not board-certified*
	US Dermatologist	US dermatologist
	Board-Certified	US board-certified dermatologist *
	Self-Described Only	Self-described US dermatologist, but not board-certified*
	International Physician	Non-US, non-dermatologist, self-described physician
	International Dermatologist	Non-US, self-described dermatologist
	Physician Assistant	Self-described physician assistant
	Nurse/Nurse Practitioner	Self-described nurse or nurse practitioner
	Dentist	Self-described dentist
	Esthetician	Self-described esthetician

Promotions	Promotional	Any disclosures for promotional content (e.g. #'s or text indicating ad, ambassador, discounts, tags, etc.)**
	Self-Promotional	Any disclosures for content promoting account's own products/services. Any links/tags to other accounts or stores with the same brand.
	None	No promotional or self-promotional content identified
Location	US	US location described in account biography or US location tagged in posts
	Foreign	Non-US location described in account biography or non-US location tagged in posts or posts/biographies written in a non-English language
	Both	Both US and non-US locations described in account biography or tagged in posts
	Unknown	No location identified

* According to certificationmatters.org

** According to the Federal Trade Commission: <https://www.ftc.gov/tips-advice/business-center/guidance/disclosures-101-social-media-influencers>

94 **Table 2.** Influencer characteristics associated with each set of influencer criteria.

		40k+ followers		Top 9, ≥5 times		All Influencers		Healthcare Only	
n		106		76		146		55	
Account Characteristic		Total	%	Total	%	Total	%	Total	%
Account Type	Business	18	17	7	9	20	14		
	Healthcare Business/Professional	43	41	31	41	55	38	55	100
	Personal	31	29	14	18	37	25		
	Patient	3	3	21	28	22	15		
	Disease Advocacy/Charity	2	2	0	0	2	1		
	Education/Informational	7	7	3	4	8	5		
	Other	2	2	0	0	2	1		
Credentials	None	72	68	56	74	104	71	15	27
	US Physician (Total)	3	3	0	0	3	2	3	5
	Board-Certified	1	1	0	0	1	1	1	2
	Self-Described only	2	2	0	0	2	1	2	4
	US Dermatologist (Total)	7	7	0	0	7	5	7	13
	Board-Certified	6	6	0	0	6	4	6	11
	Self-Described only	1	1	0	0	1	1	1	2
	International Physician	5	5	5	7	6	4	6	11
	International Dermatologist	3	3	4	5	6	4	6	11
	Physician Assistant	1	1	1	1	1	1	1	2
	Nurse/Nurse Practitioner	7	7	6	8	10	7	10	18
	Dentist	1	1	0	0	1	1	1	2
	Estheticians	5	5	4	5	6	4	6	11

	Other	2	2	0	0	2	1	0	0
Promotional Content	Promotional	36	34	18	24	46	32	5	9
	Self-Promotional	51	48	49	64	89	61	48	87
	None	3	3	9	12	11	8	2	4
Location	US	34	32	35	46	54	37	23	42
	Foreign	59	56	30	40	74	51	29	53
	Both	4	4	4	5	5	3	3	5
	Unknown	9	8	7	9	13	9	0	0