

A Systematic Review evaluating the new media landscape and its effects on skin cancer diagnostics, prognostics, and prevention

Haff, Priscilla^{1,4}; Jacobson, Alli²; Schandua, Hayden^{1,4}; Taylor, Madison¹; Doan, Hung, MD, PHD³; Nelson, Kelly, MD³

¹McGovern Medical School, The University of Texas Health Science Center at Houston, ²Davidson College, ³University of Texas MD Anderson Cancer Center, ⁴Cancer Prevention Research Training Program



Introduction

- 4.8 billion people, or 59.9% of the world's population, are social media users¹
- Social media (SM) is playing an increasingly important role in public health: 77% of cancer patients found the internet to be an important source of health information in their medical journey²
- While social media has many public health strengths (rapid dissemination, broad reach) it also has challenges (primarily misinformation)⁴
- This review focuses specifically on the effects of the new social media communication environment as it pertains to melanoma and keratinocyte cancer. While keratinocyte (basal/squamous cell) cancer is more common, melanoma is more deadly
- Patients' risk of skin cancer increases with:
 - Exposure to ultraviolet radiation (UVR) from the sun or indoor tanning facilities;
 - Having decreased melanin in the skin: melanin provides protection from UV induced genetic mutations;
 - Immunosuppression, which reduces the body's surveillance of the skin;
 - or genetic pathogenic variants

So what?

- We reviewed the current literature to understand how web-based communication around skin cancer impacts public health dynamics.



Image 1: TikTok post promoting "Black Salve" as a treatment for squamous cell carcinoma. The #BlackSalve has 1.5 M views on TikTok

Expert opinion by board certified dermatologist Kelly Nelson, MD: Black drawing salve is a dangerous product that destroys any and all skin it touches. What's particularly challenging is that it often does not completely destroy the cancer and may destroy normal skin that complicates reconstruction. So, patients often need to have larger surgeries after using black salve than if they had sought recommended medical care initially.



Image 2: TikTok post by a patient of a blanching lesion asking other TikTok users if he had skin cancer. This post received 4856 comments debating on whether or not the lesion was cancerous

Expert opinion by board certified dermatologist Kelly Nelson, MD: It is absolutely impossible for anyone, even a board certified dermatologist, to say with certainty if this area is a dangerous skin cancer or an area of dermatitis without in person evaluation.

Methods

How does the new social media communication environment relate to Skin Cancer?



What research has addressed this question and what knowledge gaps still exist?



Systematic Literature Review to find the answers!

Included : Research from January 2000- June 2023, not limited by geography, full text availability in the English language, and inclusion of new communication information and skin cancer MEDLINE, EMBASE, Cochrane Library, Web of Science, and Scopus

Search sensitivity was tested by the ability for preliminary search strategies to include known, relevant citations. A Covidence library was created to manage the citations and de-duplicate.

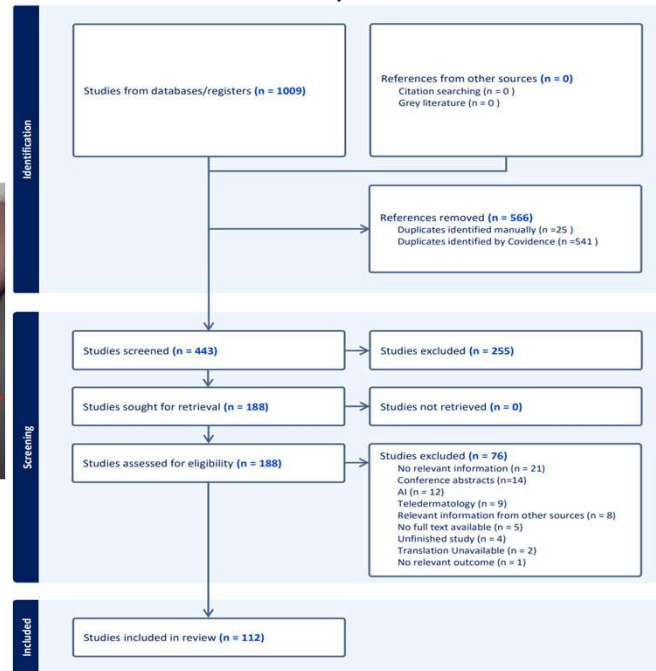


Table 1: PRISMA Diagram



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Results

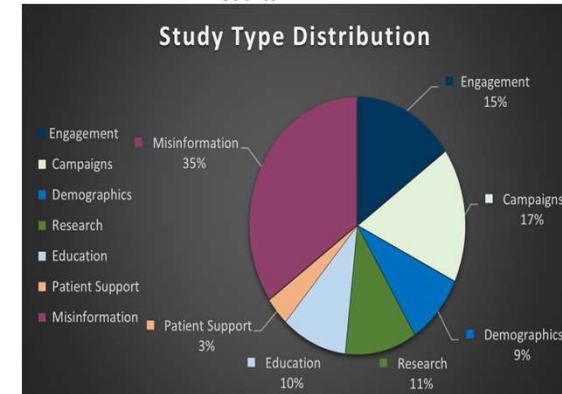


Table 2: Included records broken down by category

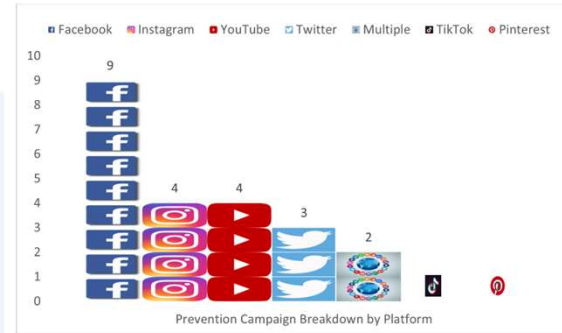


Table 3: Prevention Campaign content broken down by platform

- Our review (Table 2) illustrates the current research ecosystem highlighting the large amount of social media misinformation pertaining to skin cancer.
- SM can help researchers connect with patients with rare medical conditions: In relation to research study recruitment, 10 studies used SM to support survey completion, collecting 2,912 patient responses.
- Engagement studies revealed that top content creators for dermatologic information were influencers, celebrities, and public figures- not dermatologists - demonstrating why SM content is so variable.
- Social media-based skin cancer prevention campaigns are effective in reducing indoor tanning, however interventions published to date used older SM platforms with no published skin cancer education or prevention efforts using TikTok (Table 3).

Conclusions

- Social media users are at risk for exposure to misinformation which can decrease their trust in evidence-based medicine and may increase their intentions to indoor tan
- Physician oversight is not pervasive in the new communication ecosystem
- This review uncovered the importance of collaboration between healthcare and social media industries and introduces possible methods to decrease misinformation
- Further research is needed to:
 - understand the quality of skin cancer content on newer social media platforms;
 - Develop intervention methods for efficient physician engagement to reduce misinformation; and
 - Develop and implement prevention campaigns through new avenues such as TikTok