The James

THE OHIO STATE UNIVERSITY
COMPREHENSIVE CANCER CENTER

Misinformation about breast cancer treatment on social media: Implications for engagement with patients and social media

Margaret E Gatti-Mays[1], Kenna Koehler[1], Alexandra VanLaven[1,2], Lauren Long[1], Elsa Alvarado[1], Kerry Noce[1], Daniel Stover[1], Stephanie Collins[3], Darren Mays[1]

[1] Division of Medical Oncology, Department of Internal Medicine, The Ohio State University Comprehensive Cancer Center, Columbus, OH; [2] Denison University, Granville, OH; [3] Department of Pharmacy, The Ohio State University Comprehensive Cancer Center, Columbus, OH.

PS5-10-01

Background

- Social media has become a predominant source of information for patients with more than 5 billion patients accessing social media daily for an estimated 141 minutes per day in 2025.
- According to the 2024 Health Information National Trends Survey (HINTS), in the last 12 months
  - 83.3% of survey respondents used the internet to look for health or medical information
  - 64% of survey respondents visited social networking site almost every day (general access)
- Social media is widely available, highly utilized, and a likely source of information not only about FDA approved chemotherapies but also a source of information about alternative treatments.
- Oncology providers must have a better understanding of the content prevalent on social media to more effectively discuss pros and cons of popular alternative therapies with patients who are interested in trying these therapies.
- Social media content on alternative therapies has not been analyzed to inform effective engagement by oncology providers with the lay public.

Results

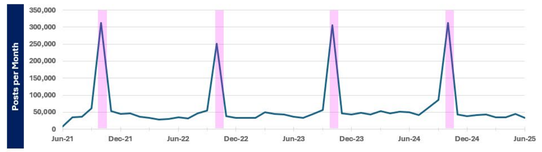
Related Social Media Posts from 6/2021 to 6/2025

At baseline there are ~40,000 general breast cancer posts per month throughout the year with posting spikes every October (pink bars). Posts about alternative therapies have steadily increased since Dec 2023. While they remain a small percentage of all posts about breast cancer they reached an estimated 55.3 million people from June 2021 to June 2025.

General Query: Breast Cancer

3.10m
Total Universe Posts

1.5
Mentions per Minute



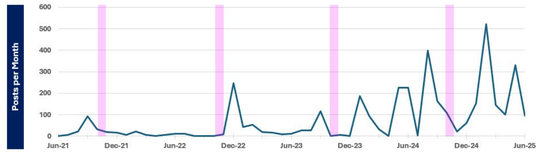
33.2b
Total Reach

421m
Total Impressions

Focused Query: Breast Cancer + Specific alternative therapies

3.72k
Total Universe Posts

2.5
Mentions per Day



55.3m
Total Reach

418k
Total Impressions

Results

Reported Demographics of Social Media Users Included in the Queries

Demographics	General Query	Focused Query
Most Common Age Range	45 – 54 yrs	**55 – 64 yrs**
Median Household Income	$60,619	$ 56,026
Higher Education	54%	57%

Prominent Topics in Social Media Posts Differed by Query Type

General Query

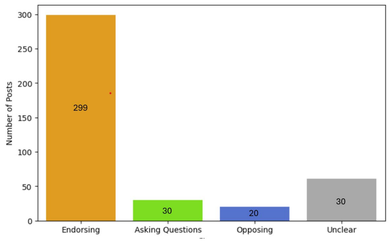


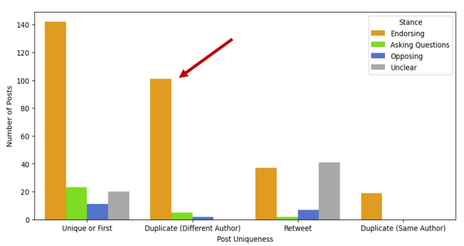
Focused Query



Side-by-side comparisons of the word clouds (i.e., *larger words appear more frequently in searched content and may represent a theme*) generated by each search shows **very different content themes** with the general query containing posts mentioning primarily "awareness," whereas the focused query identified content mentioning "patient", "testimonial", "cure", "hidden", "wow" and "game changer" among other terms.

Manual Evaluation of Focused Query Post Stance





Most of the posts in the focused query endorsed alternative therapies for breast cancer and few posts opposed or asked questions.

We also looked at retweets/reposts vs duplicate posts by a new author (red arrow). Interestingly, there were a **large number of duplicate or identical posts made by different authors on social media**, suggesting the many of these **posts originated from "bots"** rather than actual medical professionals or patients.

Discussion and Conclusion

- Although it represents a minority of social media content surrounding breast cancer, content promoting and endorsing alternative treatments for breast cancer reached an estimated >55 million people.
- Most content we identified promotes treatments that are (1) not guideline concordant and/or endorsed by oncology experts, and (2) have little to no supporting scientific or clinical evidence of safety or efficacy for breast cancer.
- Our data suggest the bulk of content promoting such treatments may be from automated accounts or "bots."
- Given the wide reach of these social media posts, these findings highlight:
  - More evidence-based information is needed in social media discussions to address prominent themes identified in the focused query.
  - Breast cancer oncology providers and patient advocates must be prepared to have thoughtful discussions with patients about use of these therapies.
  - Policies are needed to prevent or better regulate misinformation about alternative breast cancer treatments on social media.

Methods

- We used **Infegy**, a social media listening platform, to search for content about alternative treatments for breast cancer across social media platforms (**Twitter/X, Reddit, Meta platforms including Facebook, Instagram, WhatsApp**) from **June 2021 to June 2025.**
  - *Infegy provides descriptive information about content captured (e.g., # of posts, people reached, unique impressions), prominent topics, and prominent sources of posts (i.e., account handles).*
- **General search** for all content about "breast cancer" to establish the denominator of content and provide a comparison.
- **Focused search** using Boolean logic combining "breast cancer" with "ivermectin," "methylene blue," "fenbendazole," "mebendazole," and alternative names for each.
  - Ivermectin or aveidaoxia or stromectol or soolantra or sklice
  - Methylene blue or methylthioninium chloride or urolene blue or provay blue
  - Febendazole or mebendazole or fenbendazolum or fenben or panacur
- Since Infegy's sentiment feature did not accurately describe the data, **we manually analyzed the content of a subset of posts from the focused search to determine stance** – specifically if the posts were (1) endorsing alternative treatments, (2) asking questions about them (including neutral), (3) opposing the statements or (4) if stance was unclear.

Questions: Margaret.gatti-mays@osumc.edu

References: available upon request