Increased Public Interest in Merkel Cell Carcinoma, Skin Cancer, and Health Effects of Sunlight Exposure following the Death of Jimmy Buffett: An Infodemiology Study of Google Trends

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Table of Contents

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Abstract

Background: September 01, 2023, marked the loss of iconic singer-songwriter Jimmy Buffett after a lengthy battle with lymphoma precipitating from Merkel cell carcinoma (MCC). Given Buffett's prominent status, media coverage of his death was extensive.

Objective: To quantify public search interest in skin cancer, MCC, and related risk factors before and after Buffett's death, to emphasize the influence public figures and subsequent media coverage have on public health-related topics.

Methods: Relative search interest (RSI) data from Google Trends was used to perform a temporal analysis. We extracted (RSI) for search terms "skin cancer", "Merkel cell carcinoma", and "health effects of sunlight exposure" in the United States from August 02, 2023 through September 30, 2023. Auto-regressive integrated moving algorithm (ARIMA) models were constructed to forecast RSI if Buffett's death had not occurred, based on 30 days prior. Actual RSI was compared to forecasted trends in RSI during analysis.

Results: Our study found that search interest for "skin cancer", "Merkel cell carcinoma", and "health effects of sunlight exposure" significantly increased among US users following the announcement of Buffett's death. Peaks in RSI occurred two to three days following his death, correlating with major news outlets' reporting of the event.

Conclusions: Through Jimmy Buffett's unfortunate battle with lymphoma originating from Merkel cell carcinoma and subsequent media coverage of his death, public interest in skin cancer, Merkel cell carcinoma, and the health effects of sunlight exposure increased as evidenced by our results. While increased public interest in such topics may advance MCC screening and treatment aimed at mitigating unmet medical needs, it is also crucial to address challenges related to the sustainability of disseminating accurate information related to health behaviors to the public.

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Funding: No funding.

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Key Words: skin cancer, Merkel cell carcinoma, infodemiology

Introduction

Analyzing public interest in health-related topics through web-based search inquiries has become increasingly popular within the healthcare community over the past decade.[1] Infodemiology, the study of the "distribution and determinants of information across electronic platforms," provides valuable insights into health information-seeking behavior.[2] Infodemiology research often relies on data from sources such as Google Trends, which aggregates and anonymizes search data from Google's search engine. Unlike traditional data collection methods, Google Trends offers real-time data that can be stratified by geographical region and time period. The utility of Google Trends quantifying public interest in health topics and identifying trends in health information-seeking behavior has been studied and proven to be an effective means of evaluating public interest in health related topics.[3]

With the rise of social media and celebrities' increased transparency regarding personal health issues, infodemiology provides a means of quantifying public interest in health information across electronic platforms.[4] Celebrity health events, in particular, have been shown to have a significant impact on public interest in specific diseases and health behaviors. The "Angelina Jolie effect," for example, led to a surge in referrals to breast cancer clinics and genetics services following the actress' decision to undergo a preventive double mastectomy. Similarly, media coverage of celebrity cancer diagnoses and deaths has been linked to increased public interest in cancer-related topics.[5,6]

Singer-songwriter Jimmy Buffett, who famously sang, "Some of it's magic, some of it's tragic, but I had a good life all the way," tragically died on September 01, 2023 after battling lymphoma precipitating from Merkel cell carcinoma (MCC).[7,8] Buffett's death received widespread media coverage, prompting renewed interest in this rare disease among the general public.[9] To investigate the impact of celebrity health events on public interest regarding specific health-related topics, we conducted an analysis of search interest surrounding this rare and aggressive form of skin cancer using Google Trends.

Methods

Google Trends was used to quantify search interest in "skin cancer," "Merkel cell carcinoma," and "health effects of sunlight exposure" within the United States for a 60-day period encompassing Buffett's death. Search interest data were collected from August 2, 2023 through September 30, 2023. An auto-regressive integrated moving algorithm (ARIMA) was employed to compare actual search interest with projected values. Search interest data was collected from August 02, 2023 through September 30, 2023, and to compare actual search interest with projected values an auto-regressive integrated moving algorithm (ARIMA) was employed.

Results

Our analysis revealed statistically significant increases in search interest for MCC and related topics following Buffett's death. Peak search interest occurred three days after Buffett's death, with sustained interest observed for up to 15 days after the event. The increase in search interest ranged from 95.79% to 21,968.97% compared to projected values for the respective search terms, indicating a substantial impact of Buffett's death on public awareness of MCC.

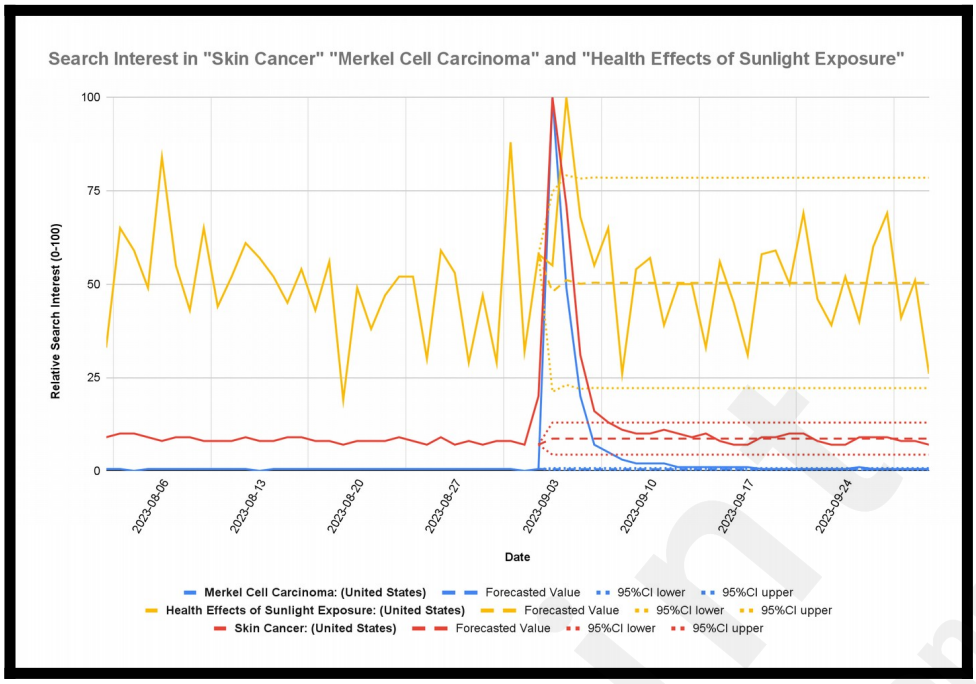

Figure 1: Relative search interest for “skin cancer”, “Merkel cell carcinoma”, and “health effects of sunlight exposure” in the United States by date.

	Forecasted RSI (95% CI)	Actual RSI	% Difference
“Skin Cancer”	8.63 (4.33-12.92)	100	1,059.42%
“Merkel Cell Carcinoma”	0.45 (0.17-0.74)	100	21,968.97%
“Health Effects of Sunlight Exposure”	51.07 (23.04-79.11)	100	95.79%

Table 1: Relative search interest percent difference by search term with 95% CI.

Discussion

Our analysis of temporal trends in search interest provides insights into the immediate impact of a celebrity’s health event on public engagement with skin cancer information. The observed sustained interest in MCC following Buffett’s death highlights the potential crucial role of infodemiology research in understanding impacts of celebrity health events on public health behaviors. Moving forward, leveraging tools such as Google Trends, researchers can gain valuable insights into patterns of health information-seeking behavior and identify opportunities for targeted public health interventions.

While celebrity endorsements and media coverage can raise awareness in the short term, sustained efforts are needed to ensure that this awareness translates into meaningful action. By continuing to

monitor trends in health information-seeking behavior, researchers can identify areas where targeted interventions and strategies are needed to promote long-term behavioral change. As we navigate the complex interplay between media influence and public health, our study contributes to the ongoing discussions on optimizing strategies for increasing awareness and improving health outcomes associated with diseases, such as Merkel cell carcinoma.

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Not applicable.

Conflicts of interest/Declarations

Dr. Hartwell receives research funding from the National Institute of Child Health and Human Development (U54HD113173; Shreffler), Human Resources Services Administration (U4AMC44250-01-02, PI: Audra Haney; R41MC45951 PI: Hartwell), and previously from the National Institute of Justice (2020-R2-CX-0014 PI: Beaman)—all unrelated to the current presentation.

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