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Exploring the impact of viral hashtags on online health information-seeking behavior: insights from a student survey

Explorando o impacto das hashtags virais no comportamento de busca de informações sobre saúde online: insights de uma pesquisa com estudantes

Reza Varmazyar[1], Sara Martínez Cardama[1]

[1] Universidad Carlos III de Madrid, Department of Library Science and Documentation. Madrid, España. Correspondence to: R. Varmazyar. E-mail: <rezavarmazyar2020@gmail.com>.

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Abstract

This study explores the impact of trends and viral content on online health information-seeking behavior, focusing on how users interact with and evaluate digital health information. The objective is to examine the role of emerging online trends in shaping perceptions and decision-making regarding health information. A cross-sectional survey was conducted at the Universidad Carlos III de Madrid in May 2023, involving 107 participants recruited through convenience sampling. The survey instrument, administered via Google Forms, consisted of structured questions assessing exposure to viral health content, participants' perceptions of its credibility, and its influence on health-related actions. The data was analyzed using descriptive and inferential statistics to identify patterns and correlations. Results reveal that a considerable proportion of participants rely on social media trends to inform their health decisions, with viral content often perceived as credible based on popularity rather than source reliability. However, the study also highlights disparities in digital literacy, with some participants demonstrating limited ability to critically evaluate online health information. These findings underscore the need for targeted interventions to enhance users' ability to navigate and assess health information in the digital age. The study contributes to understanding the intersection of digital trends and health behaviors, offering insights into future research and public health strategies aimed at promoting informed decision-making in the context of increasing reliance on online platforms.

Keywords: Digital literacy. Health behaviors. Social media. Trends. User engagement.

Resumo

Este estudo explora o impacto de tendências e de conteúdo viral no comportamento de busca de informações sobre saúde online, com foco em como os usuários interagem e avaliam informações digitais sobre saúde. O objetivo é examinar o papel das tendências online

emergentes na formação de percepções e na tomada de decisões sobre informações sobre saúde. Uma pesquisa transversal foi conduzida na Universidad Carlos III de Madri em maio de 2023, envolvendo 107 participantes recrutados por amostragem de conveniência. O instrumento da pesquisa, administrado via Google Forms, consistia em perguntas estruturadas para avaliar a exposição ao conteúdo viral sobre saúde, sua credibilidade percebida e sua influência em ações relacionadas à saúde. Os dados foram analisados usando estatísticas descritivas e inferenciais para identificar padrões e correlações. Os resultados revelam que uma proporção significativa de participantes depende de tendências de mídia social para informar suas decisões sobre saúde, com o conteúdo viral frequentemente percebido como confiável com base na popularidade, ao invés da confiabilidade da fonte. No entanto, o estudo também destaca disparidades na alfabetização digital, com alguns participantes demonstrando capacidade limitada para avaliar criticamente informações sobre saúde online. Essas descobertas ressaltam a necessidade de intervenções direcionadas a fim de aprimorar a capacidade dos usuários de navegar e avaliar informações de saúde na era digital. O estudo contribui para a compreensão da intersecção de tendências digitais e comportamentos de saúde, oferecendo insights para pesquisas futuras e estratégias de saúde pública voltadas à promoção da tomada de decisão informada no contexto de crescente dependência de plataformas online.

Palavras-chave: *Alfabetização digital. Comportamentos de saúde. Mídias sociais. Tendências. Engajamento do usuário*

Introduction

Seeking health information online can have a significant impact on how people perceive health and shape their health-related behaviors (Schäfer *et al.*, 2021). Online Health Information Seeking Behavior (OHISB) serves to bolster an individual's ability to cope and enhance their self-confidence, influencing the decisions and actions related to health by users as well as their social circle, and is frequently a topic of conversation with healthcare professionals (Morahan-Martin, 2004). The academic literature has emphasized various significant indicators of OHISB, including socio-demographic factors, general health status, proficiency of Internet use (Lee *et al.*, 2012; Rice, 2006), and risk perception (Deng; Liu, 2017). Furthermore, it is noted that these predictors are subject to change (Li; Theng; Foo, 2016). It can favorably influence users' overall health (Jia; Pang; Liu, 2021).

Currently, online social networks are widely used by many individuals, comprising five billion (5B) people (Internet and Social Media Users in the World, 2024), for various purposes, including seeking health-related information (Zhao; Zhang, 2017). Likewise, these networks allow users to share self-adjusted health information (Kamel Boulos; Wheeler, 2007), which is effective in promoting positive changes in behaviors related to overall health (Laranjo *et al.*, 2015). Social media platforms wield significant sway over health-related choices (Fernández-Luque; Bau, 2015).

From the perspective of experts, online social media has the potential to bring about transformational changes in users' behavior as well as a notable impact on traditional content, media, and communications (Pallis; Zeinalipour-Yazti; Dikaiakos, 2011). Understanding popular movements and sentiments on social media, such as forwarding, re-posting, viewing, commenting, and reacting, is vital for the implementation of fast and accurate information retrieval (Reed; Elvers; Srinivasan, 2011). These phenomena are often highlighted because several topics gain rapid attention on social networks due to a variety of reasons, referred to as trends, viral content, or hot hashtags. Viral content, driven by social processes and influenced by factors like connectedness and audience sizes, plays a pivotal yet unpredictable role in modern society, as it directs users' attention to diverse content and, despite being ubiquitous, constitutes only a small percentage of social media, with its remarkable elements including emotional impact, resonance, salience, and interest (Nahon; Hemsley, 2013).

Numerous studies explored the trends and algorithms of virality across various social media platforms like X (formerly known as Twitter), YouTube, Instagram, and TikTok (Cheong, 2009; Korbani and LaBrie, 2021; Kriegel *et al.*, 2021; Krishna *et al.*, 2013; Naaman *et al.*, 2011; Purba *et al.*, 2021; St Claire *et al.*, 2018). Recognizing these trends offers advantages for practitioners and researchers, aiding in understanding social media sentiments (Bowen, 2015). Detecting and tracking trends have even become commercialized services offered by companies, such as Trends24, Trendwatching, Google Trend, and Top hashtags. Qualitative analysis of online public attention, sentiment, and trends on X social media can enhance understanding of user behavior and potentially benefit public health (Chew; Eysenbach, 2010).

The Coronavirus Disease 2019 (COVID-19) pandemic clearly exposed the viral spread of misinformation, whether unwittingly shared, deliberately crafted disinformation, or maliciously intended misinformation, on a global scale (Kouzy *et al.*, 2020). The dissemination of misleading information, even within the realm of health, is common, potentially causing delays or barriers to effective treatment and endangering lives. Furthermore, positive elements such as optimism might inadvertently contribute to the spread of misinformation by encouraging greater participation in sharing these trends (Wang *et al.*, 2019a), which may be interpreted as a form of primary acceptance. If we accept that information can help us make informed decisions, then we can also deduce that being exposed to false information, misinformation (Li; Sakamoto, 2015), or unverified viral contents can lead to inaccurate decisions.

The aim of this study is to explore the role of viral trends and hashtags on OHISB among social media users. By employing a cross-sectional survey methodology, we seek to understand how trends influence users' engagement with and dissemination of health-related content. Specifically, this research will investigate how viral content shapes health-seeking behaviors, and how exposure to misinformation affects users' decision-making processes.

This study focuses on students, as they are the primary consumers of social media content (Gottfried, 2024). The survey is a pre-test conducted among students at Universidad Carlos III de Madrid, where participation was voluntary. The study aims to answer the following research questions: 1) RQ1: Which social media platform do students predominantly use to follow and engage with health- related trends? 2) RQ2: How do viral health-related content on social media influence students' OHISB? 3) RQ3: In what ways do popular health-related hashtags shape students' health-related decisions and actions on social media? 4) RQ4: How does exposure to viral health-related misinformation affect students' trust in, and interpretation of, online health information?

Literature Review

In the subsequent literature review, we explore the influence of trends on OHISB within the framework of social media. Trends, defined as overarching developments that persist over time on social media and are embraced by the majority, encompass popular items such as images, video clips, text, and more (Prier, 2017). They have emerged as an undeniable force shaping the dissemination of information across various platforms.

While trends are often associated with fashion designs and social media hashtags, their influence extends far beyond these domains. We explore the distinction between viral content and trends and hashtags, highlighting their subtle differences in terms of rapid dissemination and acceptance within a large audience. By focusing on the popularity and influence of three ubiquitous social media platforms among undergraduate and master's students, namely TikTok, Instagram, and

YouTube, with the addition of X for its role in tracking trends, we aim to uncover how these trends and viral contents impact the OHISB of individuals. Furthermore, we consider the cutting-edge technologies and algorithms employed by these platforms, which contribute to the personalized experience, connectivity, and real-time sentiment analysis. Despite thoroughly examining trends within marketing and various other domains, delving deeper into their impact on OHISB remains necessary. As trends persist in molding the global arena of information dissemination, understanding their influence on OHISB becomes increasingly crucial.

The role of virality and trending

Virality and trending, though often used interchangeably to describe popular content on social media platforms, bear distinct characteristics. Trending typically denotes topics or content that sustain prolonged visibility and generate significant attention, often associated with slogans or phrases relevant to current events. In contrast, virality refers to the rapid and widespread attraction of attention to a singular post, such as a meme, appreciated for its quality, relatability, or humor (Nahon; Hemsley, 2013). A trend is defined as "a simplified description of an overarching development that results from the interactions of a content core with its environment that persists over a period of time of relevance in the respective context" (Blechschmidt, 2022, p. 10). For many, it is mostly manifested either fashion designs (Blechschmidt, 2022) or a hashtag on a specific platform.

Likewise, hashtags, represented by the symbol '#', function akin to Google searches within most social media networks, operating exclusively within their public profile database, driving the trending and dissemination of topics in public fields (Arom, 2018). A hashtag functions as a keyword attached to social media posts, facilitating search and playing a significant role in organizing discussions or posts related to specific topics or events (Ma; Sun; Cong, 2012; Tsur; Rappoport, 2012).

In the meantime, why and how a piece of information, a post, or a theme goes viral has provoked debate in academia, compelling researchers to articulate the factors behind it. In one case, Kim (2015) tried to put the reasons for the virality of health news under scrutiny. The results showed that news with specific characteristics, such as controversial, emotionally evocative, familiar content, and novelty, is more likely to be shared and go viral. Asur *et al.* (2011) found that the connection between content and social media users significantly influences the emergence of trends. Additionally, a significant portion of trend-setting content originates from conventional media outlets, while social media serves as a discerning amplifier for such content.

Social media exposes an array of users every day to hashtags or trends (Varol *et al.*, 2017). In diverse forms, scales, and contexts — from important healthcare announcements to final football games — it has become a major driver of information flow. To illustrate, the hashtags are suggested to share health-related information and target specific communities of interest to serve as an accessible source of information and facilitate the dissemination of health-related content (Katz *et al.*, 2019). Reasonably, scholars contributed to characterizing different dimensions of trends and detecting emerging contexts (Naaman; Becker; Gravano, 2011; Sakaki; Okazaki; Matsuo, 2010; Sankaranarayanan *et al.*, 2009).

Social media use and trends adoption

Social media usage varies across generations, with Millennials and Gen Z being frequent users, while Gen X engages with a broader range of platforms. Gen Z typically uses 2-3 platforms daily, such as YouTube, Instagram, and TikTok (Kamble, 2023). There are a multitude of platforms

that offer diverse services, all of which are generally referred to as social media. However, this study only focuses on three ubiquitous social media platforms used by undergraduate and master's students: Instagram, TikTok, and YouTube. Moreover, we decided included X due to its prominent role in tracking trends and its widespread use for following trending events.

Considering variations in social media platforms, we considered two major criteria for choosing these networks: first, popularity among Gen Z, and second, the influence of the network on trends and viral contents. The majority of TikTok users are youth between the ages of 18 and 24 (Howarth, 2024). Also, the age group distribution of Instagram users worldwide as of January 2023 shows that almost 30.8% of users were aged between 18 and 24 (Statistica, 2024). In the case of YouTube, nearly one- third of the total number of users is younger than 34 (YouTube Age Demographics, c2015-2025. Although X is not as popular among youth as the other three platforms, it was included because of its importance in tracking hot topics and viral content and understanding real-time sentiment (Aboulhosn, 2021).

Cutting-edge technologies and artificial intelligence are implied in all four platforms that aim to personalize, protect, and boost connectivity. In the case of TikTok, its algorithm prepares individually customized video feeds and can potentially influence how we perceive reality and how we interact with each other (Klug *et al.*, 2021). X also uses an algorithm to identify popular subjects tagged with a mark, namely hashtag #, on varying scales, which may be appropriate for users based on different criteria such as their following, interests, and location (Twitter Trends FAQ [...], c2025). The same function is exploited by YouTube to recognize trends according to how many likes, comments, and views a content has (Andry *et al.*, 2021).

The purpose of using social media varies. As for Gen Z in the US, for example, according to Global Web Index (GWI), by December 2023, they stated a variation from Finding content (27.0%) to Filling spare time (37.5%) to Avoid missing out on things (17.4%) to Seeing what's trending / what's being talked about (25.3%). Another report by GWI clearly shows the desire to follow hot trends among different generations. 32% of Gen Z users, 30% of Millennials, and 27% of Gen X users express that their main purpose of using social media is to see what's trending or being discussed (Social Media by Generation, 2023). Following trends comes with potential advantages and drawbacks.

While trending topics spread information across diverse social circles, allowing messages to reach a broad audience beyond one's usual connections and exerting influence over the trend for good reasons like education or raising awareness about an issue, manipulating is an emerging and progressively perilous method of persuasion in the realm of social media. In fact, nefarious individuals can exploit trends to disseminate their messages through diverse media forms and across various platforms, with the aim of securing coverage in mainstream media (Prier, 2017).

Online Health Information Seeking Behavior (OHISB) and Trends

The OHISB could and would be influenced by various stimuli. For example, health anxiety significantly impacts individuals' tendencies to search for health-related information online (Lagoe; Atkin, 2015), characterized by a persistent fear of illness and misinterpretation of bodily symptoms as indications of severe health issues (Jones; Hadjistavropoulos; Gullickson, 2014). Besides, an experiment unveiled how emotional states (like fear, hope, contentment, interest, and inspiration) during online searches and social cognitive factors influence outcomes such as attitudes towards health-related behavioral intentions and intentions to share health information (Myrick, 2017). However, stimuli can occasionally have unintended consequences and lead to health information

avoidance. Research using the Stimulus, Organism, and Response framework demonstrated that individuals with increased social media exposure tend to experience higher levels of information overload and anxiety during health crises (Soroya *et al.*, 2021). Another study used internet search data in the States to get a better understanding of health information behavior during the last pandemic. The results revealed that there was a correlation between the numbers of US COVID-19 confirmed cases and searches for the disease (Vijay *et al.*, 2021). Exposure to buzz news and information related to COVID-19 information functioned as a trigger, prompting individuals to seek health information online. Wang *et al.* (2019b) (X. Wang *et al.*, 2019) tried to identify the reasons for the virality of cancer information on social media. They found that both the sender and the content play a role in shaping how information spreads.

As demonstrated by Ali *et al.* (2019) and Dăniasă *et al.* (2010), whether confirmed or unconfirmed, viral content circulating on social media has the potential to exert various influences on users, ranging from evoking emotions such as fear to stimulating engagement and even prompting adoption. Considering the role of perceived health risks in shaping OHISBs as indicated by Deng and Liu (2017), it makes sense that trends that evoke emotional responses could similarly affect OHISB.

The existence of misinformation or unverified information related to health on topics of interest is one of the possible concerning impacts of trends. A study on the prevalence of unverified health- related information by Sanz Suárez-Lledó and Álvarez Gálvez (2021) showed that health misinformation is highly pervasive on social media, especially on current trends like vaccines. To address the issue, Bautista, Zhang and Gwizdka (2021) suggested that healthcare professionals must actively interfere to correct widespread misinformation on social media. Notwithstanding, not all trends and viral contents are unverified. It might be hard to exactly measure the effect of widespread content and trends on users, though there have been cases where trends literally influenced health-related decision-making. For instance, the amplification of skepticism about vaccines reduced the public consensus on the efficiency of vaccines (Broniatowski *et al.*, 2018).

Digital literacy and its influence on OHISB

In the increasingly complex digital landscape, digital literacy has become indispensable equipping individuals with skills beyond operating applications and enabling them to effectively navigate and contribute to digital environments, fostering better communication, creativity, and critical thinking (Eshet, 2004). It is also linked to the ability to seek health-related information so as combat a disease or a health issue (Arias López *et al.*, 2023) and can improve overall wellbeing (Kennedy; Yaldren, 2017). Ideally, digital literacy can help individuals critically assess the credibility of viral trends and the accuracy of information shared on social media (Diepeveen; Pinet, 2022; Polizzi; Taylor, 2019), including health-related trends. For example, students with higher digital literacy are less likely to be swayed by misinformation and more adept at identifying credible sources (Anthonysamy; Sivakumar, 2024).

The proliferation of health-related misinformation on digital platforms threatens health decisions and public trust, prompting digital literacy efforts as a countermeasure (Okoro *et al.*, 2024). Therefore, digital literacy acts as a mediating factor that can potentially shape OHISB (Lee *et al.*, 2021; Noh, 2016).

While the significance of trends and their impacts has been widely acknowledged, their implications for OHISB have been largely overlooked. Despite numerous discussions on trends and viral content, primarily within marketing contexts (Sajid, 2016), their potential influence on HISB

remains unexplored. Therefore, this area warrants further research, particularly given the escalating ubiquity of trends globally.

Methodological Procedures

This study employed a cross-sectional survey to examine the impact of viral content on users' OHISB in response to trends. The survey was sent to undergraduate and graduate students at a Spanish university (Universidad Carlos III of Madrid) over a five-week period in May 2023. The survey questions were adapted from the 2020 Health Information National Trends Survey (Download Data | HINTS, n.d.) and included indicators relevant to OHISB, like socio-demographic factors, general health status, proficiency of Internet use, and risk perception (Bak *et al.*, 2022; Dadaczynski; Okan; Rathmann, 2020; Jung, 2014; Paek; Hove, 2014). The survey covered demographic information, social media-related inquiries, and OHISB-related questions.

The survey was administered using Google Forms and distributed via email to undergraduate and graduate students at Universidad Carlos III of Madrid (UC3M). The invitation to participate included a brief description of the study's purpose and an informed consent form, which participants had to agree to before proceeding with the survey. The survey was anonymous, ensuring that no personally identifiable information was collected, helping protect privacy and encourage honest responses. Participants were assured that their answers would be used exclusively for academic research purposes and would remain confidential.

The survey included questions organized into four distinct categories. The first set of questions focused on demographic information, covering gender, age, educational level, and living areas (questions 1-4). Then, respondents were asked about their social media usage habits, including how they use social media, where they source information, and their engagement with trends and popular hashtags (questions 5-17). The third section of the survey delved into online health information-seeking behavior (OHISB), exploring participants' behavior regarding seeking health information on social media, the platforms they use for health-related information, and their interaction with health-related viral hashtags and trends (questions 18-24). Finally, participants were given the opportunity to express their viewpoints on specific aspects (question 25). Overall, the survey comprised 25 questions.

To ensure accurate and inclusive responses, the survey was available in both English and Spanish. Participants who met the following inclusion criteria were eligible to participate: 1) Enrolled as undergraduate or graduate students at UC3M (Universidad Carlos III de Madrid). 2) Consented to participate voluntarily without any incentives, having agreed to the online consent form.

The survey invitation was sent to a total of 1000 undergraduate and graduate students at Universidad Carlos III of Madrid (UC3M) via email randomly. Out of these, 107 students completed the survey, resulting in a response rate of approximately 10.7%. Various strategies were employed to maximize participation, including sending reminder emails and allowing for a five-week response window. Despite the challenges typically associated with voluntary surveys, the response rate was adequate to proceed with the analysis, given the study's exploratory nature.

As an exploratory study aiming to examine trends in viral content and its impact on OHISB, the sample size was deemed sufficient to uncover meaningful insights within the study's scope. The participants, being undergraduate and graduate students, represent an important demographic for understanding social media usage and health information behavior, particularly among young adults. Future studies with larger and more diverse samples could further validate and generalize these findings.

The data were analyzed using descriptive statistics to explore trends in social media usage and OHISB, alongside correlation analyses to examine relationships between trends and viral content and respondents' health-related behaviors.

Results

The questionnaire was distributed to students across all four campuses of UC3M. A total of 107 students responded to the survey. The results are presented following the survey question order to facilitate better understanding and analysis.

Demographics

Q1-4: *Gender, Age, Level of education, Academic year*. Participants provided demographic information including gender, age, study level, and academic year. The data indicated that 54.2% identified as male, while 45.8% identified as female. Most respondents (52.3%) were in the 18-20 age range. Regarding academic level, 79.4% were pursuing bachelor's degrees, 11.2% master's degrees, and 7.5% Ph.D. programs. Academic year distribution showed that the highest representation was among Year 3 students (40.2%), followed by Year 1 students (37.4%).

Social media Uses

Q5-6: *Which of the following social media do you currently use? Which one do you use the most? Please indicate with numbers 1 to 4 (1=the most and 4=the least)*. The data suggests that Instagram and YouTube are the most popular social media platforms among respondents, with roughly 80% recently using them. Following closely are X and TikTok, with around 59% and 57% respectively indicating recent usage. However, when asked which platform they use the most among Instagram, YouTube, X, and TikTok, appears to be the least favored, with only a small percentage of respondents selecting it. In contrast, Instagram, YouTube, and TikTok are more evenly distributed, with each garnering around 28% of respondents selecting them as their most used platform.

Q7: *On average how much time do you spend on social media daily?* A significant portion spends 1-2 hours (approximately one-third) or 2-4 hours (more than one-quarter), while smaller percentages engage for shorter periods, with 25% spending 30-60 minutes and 55% spending less than 30 minutes.

Q8: *What are your main purposes of using social media?* Conversely, only a few respondents allocate over 4 hours to social media daily. The primary reasons for social media use include entertainment (85%), staying updated with news and friends, finding information, socializing, and engaging with trends and viral content (27%).

Q9: *How many followers do you have on your accounts that you most frequently use?* The data indicates that most students have fewer than 1000 followers on social media, with the largest group falling between 500 and 1000 followers. Additionally, a significant number of students have more than 1000 followers.

Q10 and Q11: *Regarding social media activity and content sharing habits*. Around a quarter of surveyed students post content daily, while the majority do not. Posting frequency varies, with some students posting multiple times per day, up to more than 25 posts daily for a few respondents. The surveyed population predominantly shares personal life updates on social media (72 respondents), followed by entertaining content like funny videos and memes (39 respondents), content related to ideas and beliefs (26 respondents), and viral content (14 respondents).

Q12: *What sorts of people do you follow on social media?* Celebrities attract the largest following among respondents, with nearly 62% having celebrities as followers. Influencers also have a considerable following, along with science disseminators, trainers/teachers, and friends/acquaintances.

Q13: *Do you use your social media accounts to obtain information?* The data indicates that a significant majority of respondents use social media as a source of information, with only a small minority stating they never do so. About one-third rely on social media very often, while an additional 42% often use it for information. A smaller portion rarely or never utilize social media for information.

Q14: *Are you interested in following viral contents or trends?* Moreover, over 70% of respondents demonstrate some level of interest in following trends and viral content. Among students surveyed, a substantial number actively seek out viral content, with varying degrees of frequency. While some students consistently engage with trends, others do so less frequently.

Q15: *Which platform do you usually use to find out about daily viral?* The surveyed population utilizes various social media platforms to stay updated on trends, with TikTok and X being the most popular; each relied upon by around 40% of respondents. Instagram is also significant, with 30.8% of respondents using it for trend information, while YouTube is utilized by 21.5% of respondents.

Q16: *Are you interested in actively take part or react (such as like, dislike, comment, share, etc.) to viral contents or trends?* Most respondents, over half, express interest in engaging with viral content and trends to differing extents. However, nearly 47% of respondents reported seldom or never reacting to trends on social media.

Q17: *Have trends in general affected your opinion about any subject?* Around 30% of respondents believe trends could influence their opinions on a subject, while nearly 44% feel trends are unlikely to affect their views. The rest remained neutral on the matter.

Online Health Information-Seeking Behavior

In this section, we delve into the specific dynamics of OHISB among the surveyed population. As social media platforms continue to play a pivotal role in shaping how individuals access and engage with health-related information, understanding the patterns of seeking, interpreting, and trusting such information becomes crucial. We explore the platforms chosen for health information, the ease of comprehension, decision-making based on obtained information, and the influence of trends and hashtags on health-related information seeking. These insights shed light on the evolving landscape of health information consumption in the digital age.

Q18: *Participants were asked whether they had ever sought healthcare information from any source on social media. If so, they were queried about the platform they primarily relied on for such information. Additionally, participants were asked to assess the ease or difficulty of making a choice from the available information, using appropriate words or hashtags to find relevant information, and finding the specific information they were seeking*. In detail, a considerable proportion of the respondents (57%, *n*=61) actively sought healthcare information from various sources on social media platforms. This is consistent with previous findings showing significant reliance on social media. Instagram emerged as the preferred platform for healthcare information, with 36.0% of the respondents relying on it for healthcare information. YouTube follows closely, with 24.6% of the respondents using it as a source. X and TikTok also serve as platforms for healthcare information, being utilized by 21.3% and 11.5% of the respondents, respectively. Other sources on social media, which include various platforms not specified, account for 6.6% of the respondents' healthcare

information searches (Figure 1). Understanding health information sourced from social media is crucial. Among the 61 individuals who sourced healthcare information from social media, about 85.0%, stated that it was either easy or very easy for them to understand the health information they received. Conversely, only roughly 15.0%, found it hard to comprehend the information. Regarding decision-making based on the health information obtained from social media, approximately 39.0%, found it very easy or easy to make choices or decisions. On the other hand, roughly 61.0%, found it hard or very hard to make decisions based on the health information they received from social media. Among the surveyed population who used social media for healthcare information, approximately 67.0%, thought it was very easy or easy to find proper hashtags or keywords to obtain relevant information. Conversely, about 33%, found it hard or very hard to find appropriate hashtags or keywords. In terms of obtaining the expected information from social media, roughly 43.0%, found it very easy or easy to obtain the desired information. However, approximately 57.0%, found it hard or very hard to obtain the information they were looking for.

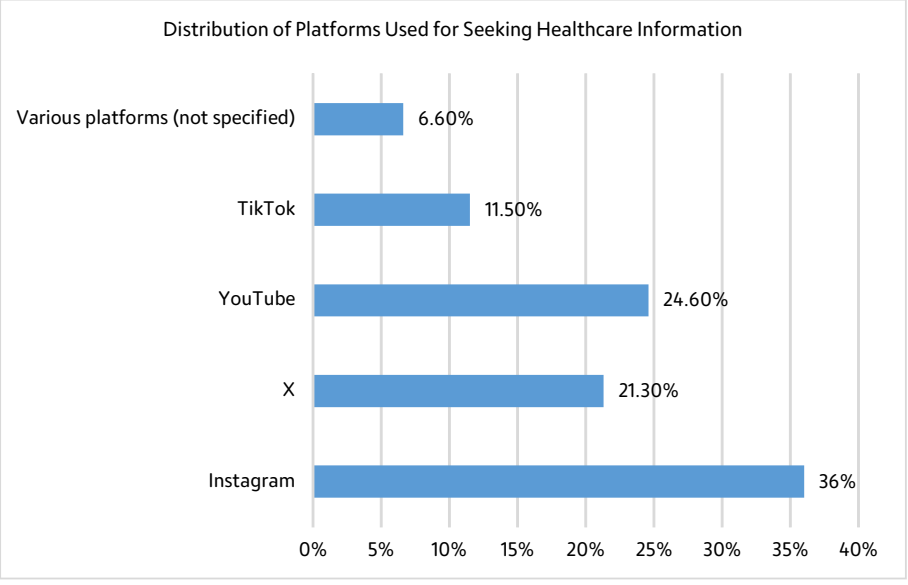

Figure 1 – Distribution of Platforms Used for Seeking Healthcare Information
Source: Prepared by the authors (2023).

Q19: In general, how much would you trust healthcare information from social media? Regarding the trustworthiness of social media as a source of healthcare information, approximately 47% of the respondents expressed varying levels of trust, using a scale ranging from 'Always' to 'Rarely.' The scale values assigned to trustfulness were as follows: 'Always' (*n*=1), 'Very Often' (*n*=6), 'Sometimes' (*n*=49), and 'Rarely' (*n*=45). Among the respondents, six individuals indicated that they never trust healthcare information obtained from social media.

Q20: Have you ever been curious to look for relevant information about a hot hashtag (#) after encountering it on social media? The engagement with health-related hashtags demonstrates a nuanced response. Among the surveyed population, the presence of hashtags (#) on social media acts as a significant trigger for seeking additional information. Approximately 22% of the respondents indicated that they either always or very often search for more information when encountering hashtags. Additionally, around 31% mentioned that they sometimes engage in further information-seeking in response to hashtags. In contrast, 29% of the respondents stated

that they rarely pursue additional information when coming across hashtags, while approximately 20% indicated that they never do so.

Q21: *If the trend in last question is a health-related trend of any kind like warning about a specific product or benefits of consuming an herb, is there a possibility to look for more about it?* When health-related hashtags such as #MonkeyPox or #seasonalflu are involved, the propensity of the surveyed population to seek additional information is slightly higher compared to general hashtags. The data shows that 2% of the respondents always feel compelled to look for further information in such cases, while 14% indicated that they very often engage in additional information-seeking. Additionally, 34% mentioned that they sometimes seek more information, whereas 40 % rarely do so. Finally, 17% of the respondents indicated that they never feel the need to search for further information when encountering health- related hashtags.

Q22: *Have you ever taken part of a health-related trend, for instance Sarcoma breakout, in any possible ways such as like, dislike, comment, share, etc.?* Being exposed to a health-related hashtag such as #COVID-19_Vaccines_sideeffects, it was found that approximately one third of the surveyed population felt persuaded to engage with the hashtag in various ways, such as liking, disliking, commenting, sharing, and more. The breakdown of responses is as follows: Always: 2 respondents, Very often: 9 respondents, Sometimes: 23 respondents. On the other hand, for the remaining respondents, the health-related hashtag may not have been compelling enough to elicit engagement. Specifically: Rarely: 24 respondents, never: 49 respondents.

Q23: *Imagine needing information about a trend, like a Dengue trend. Where would you go first?* How important is it that the information is from official sources, verified, and includes different, even controversial, opinions? In an imaginary situation where respondents encounter a viral health-related hashtag and have a strong need for information, most of them, up to 76 respondents, would first refer to search engines like Google. Additionally, 22 respondents tend to rely solely on the platform where they encountered the trending hashtag. Furthermore, 18 respondents consider other social media platforms as their primary source of information, indicating that they may rely on multiple social media platforms for their health-related information needs. Additionally, 12 respondents mentioned considering other mediums like television as sources of information. It is worth noting that some respondents may use multiple methods simultaneously, combining two or three of the mentioned approaches to gather the desired health-related information in this imaginary situation. When considering health-related information, a substantial proportion of the respondents placed significant importance on the official source of information. Specifically, 73 respondents consider it very important, while an additional 25 respondents find it rather important. Conversely, only 8 respondents find the source of information to be rather not important, and only 3 respondents stated that it is not at all important. The acknowledgment of the importance of official sources and fact-checking websites underscores the significance of verified, accurate information. Similarly, when it comes to the verification of information by fact-checking websites like www.FactCheck.org, a considerable number of respondents express its importance. A total of 35 respondents considers it very important, with an equal number of 35 respondents finding it rather important. On the other hand, 34 respondents consider the verification aspect to be rather not important, while only 8 respondents stated that it is not at all important (Figure 2).

Moreover, regarding the comprehensive coverage of the subject, forty-six respondents consider it especially important, and an equal number of forty-six respondents find it important. In contrast, 16 respondents consider the comprehensive coverage to be rather not important; while a mere 3 respondents stated that it is not at all important.

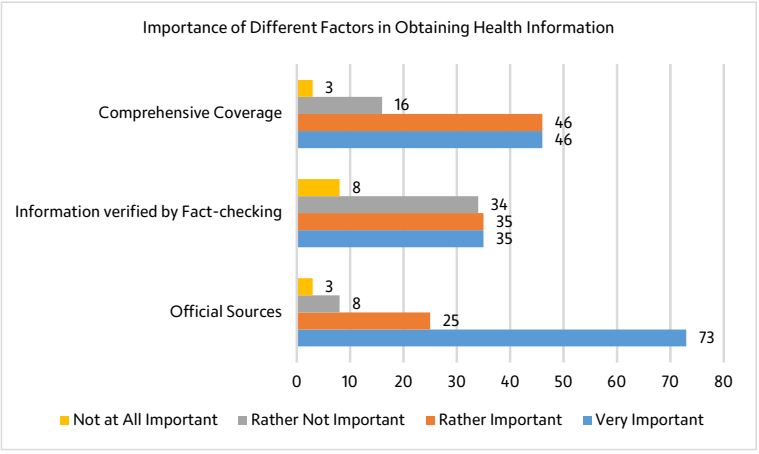

Figure 2 – Importance of Different Factors in Obtaining Health Information.
Source: Prepared by the authors (2023).

Discussion

The findings clarified that the amount of time spent on social media varied among the participants, with a significant portion allocating a moderate to high amount of time on a daily basis, which is in line with the latest *GWI* report (Social Media by Generation, 2023). This suggests that social media platforms have become an integral part of students' lives and play a substantial role in their information-seeking behaviors (Hamid *et al.*, 2016; Neely; Eldredge; Sanders, 2021; Spezi, 2016). Similar findings have been reported in other studies that emphasize the extensive use of social media among young adults and the impact it has on their health-related behaviors (Deng; Liu, 2017; Latkin; Knowlton, 2015).

In addressing RQ1, our findings revealed that Instagram and YouTube were the most popular social media platforms among the respondents, followed by TikTok and X. This aligns with the popularity of these platforms among Gen Z users, who constitute a sizable portion of social media users (Barbe; Neuburger, 2021; Sokolova; Kefi, 2020; Suwana *et al.*, 2020). Our results are consistent with previous studies that have identified these platforms as key channels for health information-seeking (Lim *et al.*, 2022; Loeb *et al.*, 2019; Szeto *et al.*, 2021). However, it is worth noting that X, despite being popular for tracking trends and viral contents, was the least frequently used platform among the four considered in our study, indicating a potential platform preference difference in health-related information seeking (Himelboim; Han, 2014; Zhao; Zhang, 2017).

Regarding RQ2, our investigation revealed the notable influence of viral health-related content, including hashtags, on students' OHISB. Viral contents attracted their attention, and many students reported participating in sharing, using, and accepting pervasive health-related contents. This finding supports previous research that has emphasized the persuasive power of viral contents in shaping individuals' health behaviors and decisions (Osop *et al.*, 2020). However, it is important to note that not all viral content may promote accurate health information, as misinformation can also spread rapidly through these channels (Kouzy *et al.*, 2020). Future research should explore strategies to ensure the dissemination of accurate and reliable health information through viral content.

In comparison to other related works, our study contributes to the existing literature by specifically focusing on the influence of viral hashtags on OHISB. While previous research has explored trends and viral contents in various contexts, such as marketing (Agam, 2017; Astari, 2021; Larson, 2009), the impact of these phenomena on health information-seeking behaviors has been

relatively overlooked. Our study fills this gap and sheds light on the role of viral hashtags in shaping individuals' engagement with health-related information.

To provide a more comprehensive understanding of OHISB, it is essential to delve into the critical aspects of fact-checking and information verification, particularly in the context of social media consumption where misinformation exists (Chan *et al.*, 2017). While our study highlighted the prevalence of seeking health information on platforms like Instagram, YouTube, TikTok, and X, it is crucial to recognize the inherent risks associated with the accuracy and reliability of information disseminated through these channels. With the proliferation of user-generated content and the rapid spread of viral hashtags, there is a heightened need for individuals to critically evaluate the credibility of the information they encounter. Fact-checking can help assess the trustworthiness of health-related content and discern between evidence-based information and misinformation (Schuetz; Sykes; Venkatesh, 2021; Zhang *et al.*, 2021). Additionally, interventions aimed at promoting digital media literacy and fact-checking skills can empower individuals to make informed decisions about their health and well-being (Lee; Ramazan, 2021). By equipping social media users with the tools and knowledge to verify information sources and corroborate health claims, we can mitigate the spread of false or misleading content and foster a culture of evidence-based health communication in online environments (Chan *et al.*, 2017).

While our study revealed a notable influence of viral contents, including hashtags, on students' OHISB, it is crucial to interpret the potential outcomes with caution, especially considering the inherent limitations of our sampling method. Sampling bias is a common challenge in non-probabilistic samples of voluntary responses, such as the one utilized in our study. In response to RQ3, regarding examining the influence of popular health-related hashtags on students' health-related decisions and actions on social media, our investigation revealed individuals who respond to online surveys may hold stronger opinions compared to the broader population, introducing a potential bias in our findings. The observed engagement with viral contents suggests a significant impact on students' attention and participation in sharing health-related information. However, it is important to note that the direct link between the impact of viral hashtags and positive health outcomes is not explicitly established in our findings. The persuasiveness of viral content, as identified in our study and supported by existing literature, underscores the need for future research to delve deeper into the nuanced effects of such content on health behaviors. Furthermore, addressing RQ4, being exposed to misinformation or unverified health- related viral content can significantly impact the accuracy of students' health-related decisions (Fernandez; Alani, 2018). This issue is particularly pertinent in the context of viral content, especially during events such as a pandemic (Dharawat *et al.*, 2020), highlighting the critical need for interventions aimed at ensuring the accuracy and reliability of health information disseminated through social media channels.

This study relied on self-reported survey data, which may be subject to biases like many behavioral and healthcare research studies do. Participants might have underreported behaviors they perceived as negative, such as reliance on unverified health information, or overreported positive behaviors, such as seeking information from credible sources. This limitation could affect the accuracy of the reported health information-seeking behaviors and underscores the need for caution in interpreting the findings. Future research could benefit from a mixed-methods approach, incorporating qualitative interviews to capture more nuanced insights into participants' motivations and behaviors.

Future research should explore several avenues to deepen our understanding of online health information-seeking behaviors (OHISB) in relation to trends. Longitudinal studies could

provide insights into how these behaviors evolve over time, particularly in response to emerging health trends on social media. Expanding the demographic scope to include diverse cultural and socioeconomic backgrounds would enhance the generalizability of findings. A mixed-methods approach, integrating qualitative techniques like focus groups, could uncover the motivations behind engagement with health information and trends on social media. Additionally, evaluating the effectiveness of digital literacy interventions could help determine their impact on improving students' ability to assess health information critically and trends. Investigating the effects of health misinformation on decision-making as well as the role of social media influencers in shaping perceptions of health content related to trending topics also presents promising research directions.

Conclusion

This study delved into the influence of viral hashtags on the OHISB of university students. Our primary goal was to gain insight into how social media trends affect OHISB, given the pervasive influence of trends in today's digital landscape. Through a cross-sectional survey, we collected data to analyze the impact of viral content on students' OHISB. Furthermore, we found that popular hashtags reflected in the students' health-related decisions, indicating that the content and trends they encounter on social media influence their choices and actions in the realm of health.

However, it is crucial to acknowledge the limitations of our study. Firstly, it was conducted among students at a specific university, which may limit the generalizability of the findings to a broader population. Additionally, the cross-sectional nature of the survey limits our ability to establish causal relationships between viral content and OHISB. Nonetheless, this study can serve as a valuable pretest for future research related to this topic, providing insights that can inform the design and execution of more extensive longitudinal studies. Future research could employ longitudinal designs and include diverse populations to further explore viral hashtags' influence on health information-seeking behaviors. In conclusion, our study highlights the significance of viral hashtags in influencing social media users' online health information-seeking behavior. Platforms like Instagram, YouTube, TikTok, and X allow students to follow trends and engage with health-related content. The findings underscore the need for healthcare professionals and public health organizations to understand the role of social media's viral content in shaping individuals' health behaviors. By harnessing the power of viral hashtags, relevant and accurate health information can be disseminated effectively, promoting positive changes in health-related behaviors and decision-making. Further research is warranted to explore the long-term effects of viral hashtags on health outcomes and to develop strategies for leveraging these trends to promote health education and awareness. By understanding the dynamics of trends and viral content on social media, researchers, and practitioners can harness their potential to positively impact individuals' health behaviors and contribute to advancing public health initiatives in the digital age.

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Contributors

Conceptualization: S. MARTÍNEZ CARDAMA and R. VARMAZYAR. Data Curation: R. VARMAZYAR. Formal Analysis: R. VARMAZYAR. Methodology: S. MARTÍNEZ CARDAMA and R. VARMAZYAR. Supervision: S. MARTÍNEZ CARDAMA. Software: R. VARMAZYAR. Visualization: R. VARMAZYAR. Writing – Original Draft: R. VARMAZYAR. Writing – Review & Editing: S. MARTÍNEZ CARDAMA and R. VARMAZYAR.