# The Impact of Social Media on Public Health Awareness and Education

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# ABSTRACT

The rise of social media has reshaped how public health messages are disseminated, offering an unprecedented opportunity for rapid communication and engagement with global audiences. This paper examines the impact of social media on public health awareness and education, examining the effectiveness of various platforms in promoting health behaviors and knowledge. By utilizing a mixed-methods approach, including content analysis, surveys, and case studies, the research highlights both the potential benefits and challenges of using social media in health communication. The findings suggest that social media can significantly influence health awareness, but also emphasize the importance of addressing misinformation, privacy concerns, and ethical considerations. The paper concludes with recommendations for improving the use of social media in public health campaigns, especially in terms of targeting diverse audiences and mitigating the risks of misinformation.

Keywords: Social Media, Public Health, Health Awareness, Health Education, Misinformation, Social Cognitive Theory.

# INTRODUCTION

Social media has become an inescapable presence in daily life throughout the world, with platforms ranging from very general interest to those focused on individuals within particular social communities. In the age of electronic communication, guided by consumerism, social media has also emerged as a significant potential factor that may influence health behavior when considered as an extension of interpersonal communication within communities. Acquiring a greater understanding of how these platforms can be leveraged to educate the public about health risks, as well as promote social solidarity that informs appropriate health decision-making, is quickly becoming a catchery of public health researchers. Tapping into this information environment allows for the dissemination of public safety information quickly and often with remoteness from those putting together this communication [1, 2]. The following paper sets out to provide a primer for media academics, public health advocates, and emergency responders who are seeking to collaborate to raise awareness of public health initiatives and the support systems that are available after disasters and emergencies. To begin, the first section lays out the literature on health communication and social media to inform the delineation of the key potential opportunities and challenges surrounding this kind of messaging that exist in academic and practitioner communities. The article then introduces the research literature on public health messaging in an increasingly networked information environment, which conceptualizes the public not as a passive receptacle but as active, media-engaged stakeholders. Several key research questions that guide this paper are introduced before concluding the introduction with an overview of how this paper is structured  $\lceil 3$ , 47.

#### **Background and Significance**

Public health communication is not a new concept, and it is not limited to the age of social media. In the past decades, health communication has merged various disciplines, including psychology, marketing, sociology, and public health. It has evolved, following industry marketing trends, from long essays, diatribes, and educational campaigns to catchy jingles, cool spokespersons, and clever campaigns that

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grab public interest. The advent of the internet then saw a significant shift in some communication practices. The relative democratization of information, however, has made the field more challenging [5, 6]. Public health campaigns may date from the 19th century, but social media have made a more significant impact on the transmission of health information in recent years. Traditional methods of 'health talks' and 'health campaigns' have gone digital, and images, short videos, and gifts have become more effective. Social media has also provided a treasure trove of information that far exceeds traditional data inputs. The internet has become a place where people share the good and bad in their lives. This is especially true with health, as people use social media to connect with others living with chronic conditions. A study of the social media activity of U.S. adults living with one of four chronic diseases found that 45% of these adults share their own experiences and 79% seek health information. For communicators, this access to a cross-section of society provides insight into different perspectives of health, disease, and illness. It also provides an interested public with a stark approach to a wide variety of public health and safety topics [7, 8].

#### **Theoretical Framework**

Social media provides an engaging platform for communicating public health messages. However, given the relatively low level of audience engagement within the larger population, little is understood about how health awareness is raised. The theoretical framework illustrates the cognitive orientations and decision matrices that attract and deter health information seekers. The dynamics of media selection and exposure and their impact on an individual's perception are grounded in the uses and gratifications theory as well as selective exposure. Both rational-choice-based audience research methodologies address decision-making processes in terms of media use and overall persuasion. The uses and gratifications perspective indicates that benefits are what guide choices. From a psychological approach, selective exposure suggests that person-specific attitudes and preferences influence media use. Such theories suggest a direct relationship between audiences and technology with no regard for the public health needs of the larger audiences. With this in mind, methods were not based on these theoretical orientations. Conversely, the diffusion of innovations and health belief models philosophically aims to assist health communication specialists in identifying the behaviors of their audiences. Thus, the diffusion of innovations describes the process an individual uses to make decisions. From a communications perspective, the innovation decision can apply to any messages that are being communicated. In the case of this study, a news release made available to national and regional media was labeled the 'innovation.' For application, behaviors associated with the innovation were alerting or not alerting others to the presence of consumer warnings on packages of seafood [9, 10].

#### **Social Cognitive Theory**

The Social Cognitive Theory (SCT) serves as an underpinning theory for public health and is particularly applicable to the way that information can be disseminated and learned from sources such as the mass media. The theory states that people are more likely to do something if they believe that they will be awarded or given recognition for it (behavioral reinforcement), have the capability to perform the behavior at hand (self-efficacy), have positive outcome expectations for performing the behavior, and if there is a perceived benefit from performing the behavior. The SCT states that behavior has two functions: it is a function of the person and a function of the environment. Firstly, if people have a positive view of the outcome, this is a positive form of reinforcement. Observing others performing a behavior also helps to enhance self-efficacy in the individual engaging in that observed behavior. Therefore, according to the SCT, switching behavior based on the environment is possible [11, 12]. Social media is designed to be a platform in which views and activities can be shared. In this feasible system, an observer of these features may develop self-efficacy by learning new ways of conducting similar behavior. Through the SCT, one can assert that by being exposed to new information, social media can influence the beliefs and opinions of others as new ways of dressing, eating, and speaking are observed. For public health, SCT suggests the value of social media where the behaviors of significant social others are transcended to the needy user. User engagement on social media is not just a function of reading and understanding what the person does, but by actively engaging with the person via likes, comments, and shares, the person becomes part of the engaging user's environment. Social media platforms purposely design systems such as stories, live features, comments, and reviews to increase user engagement. More so than self-efficacy, social media platforms introduce outcome expectancies as a recognized model of inspiration. These have been found to positively influence the strength of behavior beliefs. In these ways, social media is capable of contributing to the health outcomes of a target audience in ways that mass media cannot. So, while the SCT semantics speculate whether online is possible for health behavior change, the role of user engagement in the enablement of health education being more efficient has implications for designers of

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public health campaigns. When attempting to enable behavior change, one area of interactivity that is valuable is that of social modeling positive health behavior as a type of observational learning. Providing these behaviors as desirable and beneficial with engaged user interactivity that allows for motivational support could underpin the success of international health education found at the outset of the logarithmic trimester [13, 14].

# Methods and Approaches

This research aimed to investigate the use of social media as a way to communicate health messages and to assist with the education of the public about health and associated public health initiatives. The research combined several different techniques to provide a fuller, more holistic understanding of the impact of social media on health awareness and public health education. The research used a mixedmethods approach, conducting a quantitative analysis of 36,000 tweets across two-time points to seek changes in the number of tweets about COVID-19, the number of tweets from official government public health channels, and the interactivity of the tweets  $\lceil 15, 16 \rceil$ . This was supplemented by a small set of qualitative interviews with key public health leaders and communicators who were asked about their views on social media and changes in society, public attitudes, and awareness of health and public health issues. All research needs to be transparent and seek to answer the same research question(s) in the same way to enable it to be replicated at any point in the future and thus to be useful. The hands-off approach of the mixed-methods approach providing different disciplinary lenses is consistent with this philosophy. Ouantitative and qualitative approaches are frequently used in isolation. Mixing methodologies, in contrast, can create a complex, rich dataset, providing different angles on the topic of research through data triangulation. By embracing diversity within the emerging methodologies, the complementary aspects of possessing different types of data offer the potential for the final interpretation to be even more convincing. Units of analysis for the different data collection are, therefore, pertinent to the relevant questions and adopt methods that provide the most solid foundation for the emerging knowledge needed to inform public health campaigning. The ability to use a triangulation of these datasets creates a powerful approach to conducting research into health awareness and health promotion, and the potential of social media in this public communication context  $\lceil 17, 9 \rceil$ .

#### **Content Analysis**

Content analysis is an essential method for exploring communication about public health on social media. It has been described as a research method to improve the ability to validate new and emerging trends in public health events and knowledge management following an event. The research permits knowledge and trend validation through the systematic categorization and quantification of a particular defined set of data. A purposeful selection of data to be analyzed - for instance, user-generated content such as posts, comments, shares, and reactions - is a starting point for content analysis. A further criterion for selection may be a choice of relevant date range or a choice of platform. More refined categories for analysis may include options such as a subset of content, an audience or user group, a jurisdiction, a theme, or a particular approach. Based on a content analysis, the description of what is posted may include a focus on the tone of content, for example, whether the material reflects a positive, neutral, or negative framing of an issue. To understand reach or impact, data analyzers might explore characteristics such as posting times and levels of engagement: how many comments, shares, likes, etc. the content generates [18, 19]. Early reflexive articles on social media research focus on such practical aspects of recording, including mobile photography. A content analysis conducted public health research about multiple public health campaigns. The body of this work involves network analysis related to social media, but there are impactful examples that are relevant here. A content analysis of a sample of posts and responses to public health organizations explored the degree of negativity or decline attributed to wellness and illness themes, using data mining, qualitative analysis of top hashtag themes, and statistical analyses. This fascinating use of webometrics includes a network analysis of retweets and followers of the top three authors and also provides important public health insights. In this case, digital traces on Twitter offered opportunities to explore details of reception or level of retweets, for example. They also offer examples of applying lead user data indicating areas of content creation as well as dissemination. Therefore, while not using traditional content analysis, this important work aptly illustrates practical applications during public health events. Techniques for Analysis of Social Media Data Perspectives of content analysis have related functions that influence the corresponding analysis of social media. These include analyzing content for framing such as visual content, including images. Visual content can influence or communicate effective or ineffective responses to public health campaigns and emergencies. The study of topics and bias explained how head/tail topics have a high or low penetration. Work discussing the noninterchangeability between sentiment topics explained user considerations and actions following a

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significant movement. A supervised sentiment analysis using a popular tool for keyword searches was also conducted [17, 20].

#### **Surveys and Questionnaires**

Surveys and questionnaires have been the most commonly used tools in this type of research to elicit quantitative data from a large sample about their perceptions of the health information being portrayed on social media. The process of designing a successful survey includes all the necessary considerations such as types of questions, the design of response scales, survey length, and question ordering. Most of the surveys and questionnaires conducted an empirical investigation on the content, quality, use, and impact of sources of health information that are communicated through social media outlets. As a result, the survey questions mainly focus on gaining an understanding of how such health information impacts users' health decisions and behaviors [21, 22]. In general, survey research aims to capture the diversity in public opinion. The delivery of the surveys to a wide and varying sample will confirm the comprehensiveness and validity of the results. Sampling strategies attempt to recruit valid findings from the public through a variety of sources, resulting in suitable options to conduct a survey or other data collection methods. Ethical considerations should not be underestimated, especially when targeting confidential information, and in research that attempts to study a specific group of stakeholders. Furthermore, maximal effort should be made to retain pertinent contacts and to elicit a positive response rate from an appropriate sample during the data collection. Response rates are normally expected where the data informants are kind enough to provide appropriate insight into the subject. The response sets are then scored and used as a basis for the data analysis. Results can then be transformed into a new variable representing the "perception" of social media as a source of health information. Surveys gather users' attitudes and practices to enhance a better understanding of available information. Such methods can be complemented with in-depth interviews to further study user practices and contexts [23, 24].

#### **Case Studies**

Case Study 1: National Influenza Vaccination Week Case Study 2: Me Quedo Campaign Case Study 3: Bell Let's Talk Case Study 4: Major Keys to Mental Health Case Study 5: Perception of Isolation Case Study 6: U-Cruis: some several elements or categories can be used to better understand the different strategies used and potentially some best practices, and discussion of common pitfalls. Topic/Social Media Campaign Vaccination/National Influenza Vaccination Week Mental Health Awareness/Me Quedo Campaign Mental Health Awareness/Bell Let's Talk Mental Health Awareness/Major Keys to Mental Health Mental Health Awareness/Perception of Isolation HIV/University of Kansas Influencers This is pivotal for building trust with the community. If you have experts or public figures who are willing to become involved, especially in the initial stages of the campaign, this can help you establish buy-in or popularity behind the campaign. Challenges Be prepared to change tack if your campaign is less popular than you might have hoped. You don't want to continue investing in a campaign that is generating little or no meaningful traction [25, 26].

# Successful Campaigns

The essential features of successful campaigns depend on the platform and audience and often feature creativity and a clear message. Of the social media campaigns, many have been on Instagram, and the most common themes concern the prevention of drug or alcohol use, both of which are areas of concern for public health in young people. Emergencies have led to the rapid development of successful campaigns that have capitalized on social media. In this study, successful campaigns identified involved the use of a variety of media, targeted different audiences, and employed different strategies for the message advice given. Recommendations made by public engagement reports and reviews into the use of social media in health promotion have suggested that different types of content can be useful; these include images, written posts, and quizzes. Additionally, for health promotion in young people, recommendations cite methods such as providing opportunities for public responses to content or facilitating discussion. Campaigns that have successfully used social media to promote health messages in a range of areas have used some of these methods. To evaluate the impact of the campaign, several metrics could be used. These are often dependent on the platform for which the campaign is made, but for Twitter and Facebook, 'reach', 'engagement', and 'amplification' could be used. For Twitter, the reach and engagement rate can be collected via a survey. For campaigns on Instagram, engagement rates are typically used to assess the number of reposts, likes, comments, and followers gained [27, 28].

#### **Challenges and Ethical Considerations**

Stepping back from the largely positive framing of the potential role of mainstream and social media, the challenges and ethical considerations about using digital media for public health messaging warrant some scrutiny. One of the key concerns is misinformation – an issue that is similarly signaled in messages

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suggesting only receiving health advice from government channels. Misinformation is currently spreading wildly about COVID-19 and also about the vaccine. Alarmingly, it spreads more quickly and more extensively than factual information online. In combating this challenge, there are many ethical responsibilities relevant to public health communications. Other challenges relate to the capacity for extensive data collection and about consent and privacy from those interacting with the content - all important, but challenging elements for ensuring any public health professionals and their informants operate transparently and with appropriate regard for ethics. Finally, the idea of the 'attention economy' where companies' algorithms ensure that individuals' online time and interactions generate commercial profit – makes the prospect of simply disseminating information all the more challenging. The prospective impact of public health messaging on social media cannot be addressed without consideration of the consumer's digital journey and the inequalities within the web of social determinants that predetermine any possible outcomes. As it stands, an emerging evidence base confirms the reality of a concerning equity gap in digital health interventions and digital health skills among vulnerable population groups. Those 'hard to reach' do not share access to or interest in health information and thus are provided with fewer reinforcing cues of health norms and rarely have an opportunity to shape any potential change through public debate or democratic means. Indeed, social networks across ages and social groups continue to be a strong determinant guiding lifestyle and persuasive health messaging engagement, while highly segmented and hyper-specific forms of advertising and targeted public health messaging aggravate pre-existing disparities. A one-size-fits-all social marketing approach should no longer be considered ethical. For public health professionals to be engaged in digital public health communication, there must be mutually informed consent, in the form of a regulatory framework outlining the states and allowing for public health institutions, involved in the protection of vulnerable community members, to engage in unethical acts of manipulation when strictly justified. Moreover, pressing social and political issues and the so-called 'infodemic of disinformation' challenge having an independent and unbiased dialogue about the ethical dimensions of social media in public health  $\lceil 29, 30 \rceil$ .

#### CONCLUSION

Social media has proven to be a powerful tool in raising public health awareness and educating the public on important health issues. The interactive nature of platforms such as Twitter, Instagram, and Facebook enables public health communicators to engage directly with diverse audiences and share valuable health information in real time. However, challenges such as the spread of misinformation, the ethical implications of data privacy, and the potential exacerbation of health disparities must be carefully navigated. Future public health campaigns should leverage the strengths of social media, including user engagement and real-time information dissemination while addressing the ethical concerns surrounding misinformation and digital privacy. By developing more inclusive and transparent strategies, social media can continue to serve as an essential tool in the fight for better public health outcomes globally.

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CITE AS: Kagaba Amina G. (2025). The Impact of Social Media on Public Health Awareness and Education. Eurasian Experiment Journal of Arts and Management 7(3):81-87

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