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THE ROLE OF SOCIAL MEDIA MISINFORMATION AND DIGITAL HEALTH LITERACY IN VACCINE HESITANCY AMONG COLLEGE STUDENTS

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THE ROLE OF SOCIAL MEDIA MISINFORMATION AND DIGITAL HEALTH LITERACY
IN VACCINE HESITANCY AMONG COLLEGE STUDENTS

By

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Abstract

This literature review examines the factors contributing to vaccine hesitancy among college students, with particular attention to social media misinformation, trust in information sources, and varying levels of digital health literacy. Vaccine hesitancy remains a major global public health concern, as it reduces vaccination coverage and increases the risk of disease outbreaks. College students are especially vulnerable because they rely heavily on digital platforms for health information and frequently encounter vaccine-related content through algorithm-driven feeds and peer networks. Social media environments amplify misinformation by prioritizing high-engagement content, enabling the rapid spread of misleading claims through influencers, automated accounts, and user interactions. While exposure to such content can increase perceived vaccine risk and weaken trust in public health institutions, the effects are not uniform across individuals. This paper argues that vaccine hesitancy cannot be explained by exposure to misinformation alone but is shaped by how students interpret and evaluate information. Digital health literacy plays a central role in this process. Students with higher levels of digital health literacy are better equipped to assess the credibility of sources, compare competing claims, and apply evidence-based information to decision-making, making them less susceptible to misinformation. In contrast, those with lower levels of digital health literacy are more likely to experience confusion and uncertainty when navigating complex information environments. The findings suggest that strengthening digital health literacy through targeted educational and public health interventions offers a more sustainable approach to addressing vaccine hesitancy than focusing solely on correcting misinformation.

Generative AI tools were used during the early stages of this project solely to assist with brainstorming topic directions. All research, source selection, analysis, and writing of this abstract were completed independently by the author.

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Methodology

This study utilizes a literature review approach to examine how social media influences vaccine hesitancy among college students, with particular attention to the role of digital health literacy. Rather than collecting primary data, the study synthesizes findings from peer-reviewed research to identify recurring patterns related to misinformation, trust, and health decision-making.

Relevant literature was identified through systematic searches in academic databases accessed via EBSCOhost, including *Academic Search Complete* and *Communication Source*, as well as PubMed and other relevant databases. Search terms were developed in consultation with a research librarian and included the following Boolean string: (“vaccine hesitancy” OR “vaccine refusal” OR “anti-vaccine movement” OR “immunization refusal” OR unvaccinated*) AND ((college OR university) students) AND (“social media” OR Facebook OR Twitter OR Instagram OR Snapchat OR Tumblr OR “social networking” OR TikTok OR YouTube). This structured approach enabled a comprehensive yet targeted selection of studies, including both general and platform-specific research.

Articles were selected based on their relevance to the research topic. Priority was given to peer-reviewed studies that directly examined vaccine hesitancy, social media use, and digital information environments. Studies focusing on unrelated populations or lacking engagement with misinformation or digital health communication were excluded. Emphasis was placed on research that provided empirical evidence or clear analytical insight into how misinformation spreads and influences health perceptions.

The review draws primarily on public health and medical research, given the nature of vaccine hesitancy as a public health issue. These sources offer empirical evidence on vaccination

behavior, health communication, and the dynamics of misinformation, ensuring that the analysis is grounded in credible and relevant scholarship.

Limitations

This study has several limitations. First, I initially planned to conduct original research through a quantitative survey targeting UC Riverside students between the ages of 18 and 24. The goal was to directly examine how exposure to vaccine-related content on social media influences trust in vaccine safety and effectiveness. The survey would have included questions on social media use, exposure to vaccine-related posts, and levels of trust in different sources of information. However, due to time constraints and the inability to obtain IRB approval within the required timeline, this component of the study was not carried out. As a result, this project relies entirely on existing literature rather than original data, which limits the ability to draw conclusions based on firsthand evidence from the target population.

Second, because this study is based on a literature review, its findings depend on the scope and quality of the available research. While the sources included are peer-reviewed and relevant, they may not fully capture all perspectives or recent developments, particularly given how quickly social media platforms and information environments evolve. This also means that differences in study design, sample populations, and methods across the literature may affect how findings can be compared and interpreted.

Another limitation is the focus on college students as the primary population. While this group is important due to their high use of social media and role in making independent health decisions, the findings may not be generalizable to other age groups or populations with different levels of digital access, education, or health literacy.

Finally, many of the studies included in this review rely on self-reported data, particularly when measuring social media use, exposure to misinformation, and levels of trust. Self-reported measures can be influenced by recall bias or social desirability, which may affect the accuracy of the findings.

Introduction

Vaccination is widely recognized as one of the most effective public health tools and plays a critical role in preventing the spread of infectious diseases. Maintaining high vaccination rates is necessary to achieve herd immunity and reduce the risk of outbreaks, especially for diseases that spread rapidly (Puri et al., 2020, p. 2586). This became especially clear during the COVID-19 pandemic when vaccines were considered effective in reducing severe illness and death, even as uptake varied across populations (Skafle et al., 2022, p. 2). However, even when vaccines are available and scientifically proven to be effective, not all individuals choose to receive them. This gap between availability and uptake reflects the growing challenge of vaccine hesitancy. Vaccine hesitancy refers to the delay, uncertainty, or refusal of vaccines despite their availability and exists on a spectrum, ranging from mild skepticism to complete rejection (Puri et al., 2020, p. 2586).

For the purposes of my research, my target population is college students because of the unique ways in which they seek out and engage with health information. As Berry et al. (2023) explain, college students are “more susceptible to peer influence” and “more likely to seek out health information on social media platforms like TikTok, Instagram, and Twitter than other age groups” (Berry et al., 2023, p. 2). While these platforms can provide access to information, they also amplify the rapid spread of misinformation through peer networks. This makes college students particularly vulnerable to encountering and engaging with misleading health

information. This raises an important question: why are college students who are well educated and have constant access to health information online, still vulnerable to vaccine hesitancy? This paper argues that high vaccine hesitancy among college students is due to factors such as misinformation about vaccines in terms of their effectiveness and side effects, lack of trust in healthcare institutions, and low digital health literacy.

To examine this, the digital environment that college students navigate is viewed through the lens of an “infodemic” where accurate information and misinformation exist side by side and where social media algorithms, echo chambers, and peer networks shape both what students are exposed to and how they make sense of it. In this context, digital health literacy which refers to the ability to find, evaluate, and apply health information in online environments; emerges as a critical factor. Students with lower levels of digital health literacy are more likely to struggle with evaluating the credibility of information and are therefore more vulnerable to misinformation and uncertainty. In contrast, students with stronger evaluative skills are better equipped to navigate complex information environments and make informed health decisions. By examining the interaction between social media, misinformation, and digital health literacy, my capstone seeks to provide a more nuanced understanding of vaccine hesitancy among college students and to highlight the importance of strengthening evaluative skills as part of public health strategies.

Part 1: The Digital Information Environment and the Spread of Misinformation

College students rely heavily on digital platforms as their primary source of health information, meaning that social media is not simply a supplementary tool but a central environment where health knowledge is encountered, interpreted, and shared. Patil et al. (2021) found that students engaged with a range of platforms, including Facebook (73%), Instagram

(70%), YouTube (57%), and Twitter (54%) (p. 5). In addition, 96% of students in the sample reported searching the internet for COVID-19-related information within the past two weeks (Patil et al., 2021, p. 7).

As a result of this heavy reliance on digital platforms, students are navigating what Skafle et al. (2022) describe as an “infodemic” which they define as “too much information including false or misleading information in digital and physical environments during a disease outbreak” (p. 2). In this environment, the challenge is not a lack of information, but rather the presence of an overwhelming number of competing claims. For college students, the difficulty lies not in accessing health information but in determining which sources are credible and trustworthy. As a result, even individuals who actively seek out information may struggle to make sense of what they encounter. The abundance and variability of content create conditions in which confusion and uncertainty can emerge which complicates the process of forming clear and informed health decisions.

Prevalence and Accessibility of Misinformation

Within this broader information environment, misinformation becomes a significant concern. Misinformation refers to false or misleading information that can shape how individuals interpret health risks and make decisions. What is also important to note is that exposure to misinformation is not random. Dib et al. (2021) found that individuals who search for vaccine risks are more likely exposed to misinformation, with one study showing that these searches return “3.6 times more vaccine myths per website than parents who use neutral terms... and 4.8 times more myths than parents who search information about vaccine benefits” (p. 1). This suggests that even small differences in how individuals search for information can significantly influence the type of content they encounter.

This issue is further intensified by the visibility and widespread circulation of misinformation on digital platforms. For example, Puri et al. (2020) found that 27.5% of widely viewed COVID-19–related videos contained non-factual information and received over 60 million views (p. 2587). Similarly, Garrett and Young (2021) report that anti-vaccination accounts have built large followings, including over 31 million Facebook users and 17 million YouTube subscribers (p. 2195). These findings indicate that misinformation is not only prevalent but also highly visible within social media networks, increasing the likelihood that users will encounter it during routine engagement.

Additional research reinforces this pattern as well. Gabarron et al. (2021) further show that misinformation can make up between 0.2% and 28.8% of social media posts about COVID-19 (pp. 456-459). They also note that similar variation appears across different health contexts with studies on other pandemics reporting rates such as 4.5% of posts on Twitter about H1N1, 23.8% of YouTube content about Zika, and 55.5% of posts on Twitter about Ebola (Gabarron et al., 2021, p. 459). While these estimates vary, they consistently show that misinformation is a recurring part of online content, rather than something rare or isolated. Taken together, these findings suggest that encountering misinformation is not unusual, but a routine part of how students engage with digital platforms.

Social Media Dynamics

Exposure alone does not fully explain how misinformation influences attitudes, as the dynamics of social media platforms play a critical role in shaping what users see and how often they see it. Most platforms rely on algorithmic systems that curate content based on prior user behavior which include factors such as likes, shares, and viewing patterns. Jennings et al. (2021) explain that platforms such as YouTube use watch history to guide recommendations through

features like “Up-Next” where viewing vaccine-related misinformation can lead to further recommendations that contain similar misleading content (p. 2). This creates filter bubbles, where individuals are repeatedly exposed to similar information instead of a range of perspectives which limits their ability to encounter alternative or corrective information (Jennings et al., 2021, p. 2). These systems are designed to maximize engagement by continuously reinforcing previously viewed content.

Social media platforms further reinforce these patterns through user engagement and interaction. Kuo and Chen (2025) define engagement through actions such as shares, reactions, and comments, which reflect how users actively interact with content (p. 4). These interactions are not always neutral because comments can include biases, errors, and uncivil behavior that influence how others perceive information. In addition, they suggest that misinformed individuals tend to be more vocal online, meaning that misleading perspectives may be more visible within these discussions (Kuo and Chen, 2025, p. 4).

User behavior also plays a critical role in reinforcing exposure. Berry et al. (2023) report that students often come across vaccine-related information through incidental scrolling rather than intentional searches, suggesting that exposure to information (including misinformation) can occur passively (p. 12). Once exposed, individuals tend to engage with content that aligns with their existing beliefs which reinforces what they see over time. Puri et al. (2020) explain that users “self-select streams of content relevant to their interests, whilst simultaneously rejecting content with which they do not agree,” leading to the formation of ideologically distinct “echo-chambers” (p. 2587). Within these environments, opposing viewpoints are less visible, and repeated exposure to similar perspectives reinforces existing beliefs. As a result, exposure is

not only shaped by platform design but also by user behavior which makes it more difficult for students to critically evaluate information when its accuracy is uncertain.

Amplification of Misinformation

Building on these patterns of engagement and user behavior, misinformation spreads across social networks in uneven and amplified ways. Pierri et al. (2023) analyzed a large set of vaccine-related tweets and found that although low-credibility content was less common overall, it was more likely to be shared through retweets, giving it a “greater potential for contagion through the social network” (p. 6). This suggests that misinformation does not need to be the most prevalent type of content to have an impact. Instead, patterns of sharing allow it to spread widely, enabling even marginal content to reach broader audiences and influence how individuals understand vaccine information. This spread is not random but is driven by specific users and network structures.

A small group of highly active accounts, often referred to as “superspreaders” were responsible for a disproportionate share of misinformation, with around 800 accounts generating about 35% of all reshares and one account alone contributing over 13% of total retweets (Pierri et al., 2023, p. 1). Other actors also contribute to this amplification. They also find that verified accounts make up for about 34% of retweets of low-credibility content, despite representing a much smaller proportion of users (Pierri et al., 2023, p. 7). In addition, automated accounts or bots showed higher levels of activity in sharing misleading content which allows it to spread more quickly and repeatedly (Pierri et al., 2023, p. 9). Taken together, these findings show that misinformation does not spread evenly but is amplified by influential users and shaped by underlying network dynamics.

Part II: Beyond Exposure: Interpreting Misinformation in Context

Repeated exposure to information on social media not only shapes what students encounter but also influences how they interpret the information they see. Over time, such exposure can make certain claims appear more credible, even when their accuracy is uncertain. However, while misinformation is frequently identified as a central driver of vaccine hesitancy, it does not fully explain why some college students become hesitant while others do not. Exposure to misleading or false information is widespread, yet its effects are uneven. This suggests that vaccine hesitancy cannot be reduced to a simple cause-and-effect relationship between misinformation and belief. Instead, it emerges from a more complex interaction of factors which include trust, peer networks, and the experience of conflicting information. Examining these dimensions provides a more nuanced understanding of how hesitancy develops among college students.

Trust as a Filter for Evaluating Health Information

Trust plays a central role in shaping how individuals interpret health information and particularly in environments where they are exposed to mixed and conflicting content. Among college students, trust is shaped by multiple influences. Some students' express confidence in medical professionals and public health authorities, while others approach institutional messaging with caution or suspicion. Social media further complicates this dynamic by placing institutional sources alongside alternative voices, including peers and other non-institutional sources of information. In this environment, official messages no longer hold an automatic position of authority and must compete with other forms of information that may appear more relatable or emotionally compelling.

This shift influences how credibility is judged. Zhang et al. (2024) found that “a higher level of perceived credibility... was associated with intention to engage with the post” (p. 562). This demonstrates that when individuals perceive misinformation as credible, they are more likely to interact with it, including sharing it with others and this contributes to its spread. The study also found that “individuals exhibiting higher levels of vaccine hesitancy tended to view the misinformation as more credible” (Zhang et al., 2024, p. 556) which highlights how preexisting beliefs shape interpretation. This reflects confirmation bias, in which individuals favor information that aligns with their existing beliefs while dismissing conflicting evidence. As a result, when misinformation aligns with prior beliefs, it becomes more persuasive and more likely to be reinforced through engagement.

This relationship is reflected in broader patterns of vaccine attitudes. Research shows that higher trust in health institutions is associated with greater willingness to vaccinate, while distrust and conspiracy beliefs are linked to increased hesitancy (Jennings et al., 2021, p. 10). Using survey data, Jennings et al. (2021) found that “those with the highest levels of trust in health institutions are just over six times more likely to express vaccine willingness” (p. 8). This demonstrates that when trust is strong, individuals are more likely to accept vaccination even in the presence of uncertainty. However, when trust is weak, individuals may become skeptical of even well-established scientific evidence.

This pattern is further highlighted in specific attitudes and behaviors. The authors found that individuals “who mistrust government are more hesitant”, with those at the highest levels of mistrust being significantly less likely to be willing to be vaccinated (Jennings et al., 2021, p. 8). They also found that “holding conspiracy beliefs is a significant predictor of vaccine hesitancy”

(Jennings et al., 2021, p. 10), suggesting that exposure to misinformation can reinforce alternative explanations that further weaken trust in official sources.

Their findings further indicate that reliance on less regulated platforms, such as YouTube, is associated with lower vaccine willingness. Specifically, they found that “only YouTube users were significantly less willing to be vaccinated, with a two-thirds likelihood of vaccine willingness compared to non-users” (Jennings et al., 2021, p. 10). This suggests that exposure to less regulated content may contribute to declining trust in institutional sources and increase susceptibility to misinformation. More broadly, they emphasize that “misinformation thrives where there is lack of trust in government, politics, and elites” (Jennings et al., 2021, p. 11), showing that weakened trust creates conditions in which misinformation is more likely to be accepted and vaccine hesitancy is intensified.

Social Influence and the Role of Peer Networks

Peer networks constitute a critical dimension in understanding vaccine hesitancy among college students. Students are embedded in social environments where information is shared not only through formal channels but also through interpersonal relationships. Friends, classmates, and online communities play an important role in shaping perceptions and attitudes, as information shared within these networks often carries credibility derived from familiarity and trust. As a result, messages received from peers may be perceived as more authentic or relevant than those delivered by institutional authorities.

In a study of students at an urban community college, Grace-Leitch et al. (2023) found that although students reported high levels of COVID-19 knowledge and self-efficacy, only about one-third felt confident in the safety of the vaccine, indicating relatively low vaccine acceptability. Within this context, they found that “of the vaccinated students, 75 percent were

influenced to get vaccinated by their friends and family members” (Grace-Leitch et al., 2023, p. 111). This highlights that vaccination decisions are not made independently but are shaped by social relationships. Similarly, Berry et al. (2023) show how family influence can affect students’ decisions. In interviews with university staff, one participant explained that “it is a huge thing for students that their parent is like ‘I’m not so sure,’ and so then they don’t want to go against their father and get the vaccine” (Berry et al., 2023, p. 9). This demonstrates how social pressure and relational dynamics influence how students interpret information and make health decisions.

Social media amplifies these peer dynamics by enabling rapid and widespread sharing of content within connected networks. Students frequently encounter health-related information through posts, comments, and discussions within their social circles, which can create a sense of consensus even when the information is inaccurate or incomplete. Over time, repeated exposure to similar viewpoints can normalize certain beliefs, making them appear widely accepted and reinforcing shared understandings that may diverge from established scientific knowledge. As a result, vaccine attitudes are shaped not only by the content of information but also by the social contexts in which that information is encountered which makes it more difficult for students to critically evaluate information and increasing the likelihood of vaccine hesitancy.

Conflicting Information and Interpretive Uncertainty

A third factor that complicates the relationship between misinformation and vaccine hesitancy is the experience of conflicting information. College students are exposed to multiple and sometimes contradictory claims about vaccines. On one hand, they encounter scientific evidence and public health recommendations that emphasize safety and effectiveness. On the other hand, they may encounter personal stories, anecdotal accounts, or speculative claims that highlight potential risks or uncertainties. These conflicting messages do not simply cancel each

other out; instead, they create a state of ambiguity in which it becomes difficult to determine what is true.

This ambiguity can lead to information fatigue or decision paralysis, where individuals struggle to process and evaluate competing claims. In such situations, cognitive overload limits the ability to engage in careful analysis. As a result, individuals may rely more on intuitive judgments shaped by emotion and social influence rather than critical evaluation (Lu and Xiao, 2023, p. 2782). In this context, emotionally engaging, visually appealing, or experience-based content often gains traction more readily than scientific evidence or public health recommendations. Lu and Xiao (2023) further explain that negative emotional states can “reduce the processing effort invested in ongoing cognitive tasks,” making it more difficult to critically assess information and increasing the likelihood that individuals will trust and share content regardless of its accuracy (p. 2782).

As a result, emotional content becomes particularly influential in contexts of uncertainty. Rather than resolving confusion, it can reinforce doubt and shape perceptions by making certain claims feel more convincing even when their accuracy is unclear. In this way, the presence of conflicting information shifts the issue from one of knowledge deficiency to one of interpretive difficulty.

Part III: Digital Health Literacy as an Interpretive Framework

Exposure to misinformation can influence how individuals perceive vaccine risks even over very short periods of time. Puri et al. (2020) found that “even brief exposure (as little as five-to-ten minutes) to vaccine-critical websites increased the overall perception of vaccine risk” compared to control websites (p. 2588). This finding shows that misinformation does not require prolonged exposure to have an effect. Even short interactions can shift how individuals interpret

vaccine safety, which is particularly concerning in digital environments where such exposure is frequent.

However, the effects of misinformation are not uniform. Without sufficient guidance or foundational knowledge, repeated exposure to misleading content can reinforce misconceptions rather than correct them. This uneven impact is closely linked to differences in students' ability to evaluate health information. Although college students are often considered digital natives and are highly engaged with online platforms, they may not possess the critical skills required to assess the information they encounter and research consistently highlights these gaps. Stellefson et al. (2011), in a systematic review of college student eHealth literacy, note that many students lack the skills needed to evaluate online health information and “would be well served to receive more customized college-level instruction that improves general eHealth literacy” (p. 1).

Similarly, Patil et al. (2021) found that only 49% of students demonstrated adequate health literacy (p. 1), while Moretti et al. (2023) report that fewer than half of participants felt confident evaluating online health information and only a small proportion reported confidence in applying it to decisions (p. 5). These findings indicate that exposure alone is insufficient to explain how students interpret health information and point to the importance of the skills and capacities involved in this process.

Recognizing these complexities is essential for moving beyond simplistic explanations of vaccine hesitancy. Factors such as trust, peer networks, and exposure to conflicting information interact to shape how students interpret and respond to health information. Together, these dynamics show that the impact of misinformation is mediated rather than direct. These conditions point to the need for a framework that can explain how individuals navigate and interpret complex information environments.

At its most basic level, digital health literacy provides such a framework, referring to the ability to find, understand, evaluate, and apply health information obtained from digital sources (Lopez et al., 2023, p. 1). This concept builds on broader definitions of health literacy which refers to an individual's ability to obtain, process, and understand health information in order to make appropriate health decisions (Rababah et al., 2019, p. 1), while incorporating the specific challenges of online environments where information varies widely in credibility.

Core Components of Digital Health Literacy

Digital health literacy includes a range of skills such as locating relevant information, assessing the credibility of sources, comparing conflicting claims, and integrating knowledge into informed decision-making. Importantly, it is not limited to technical competence or the ability to use digital tools. Instead, it also involves critical thinking, judgment, and the ability to interpret information within social and cultural contexts.

This broader understanding is reinforced by Dib et al. (2021), who conceptualize eHealth literacy as a form of “metaliteracy” that integrates multiple competencies, including health literacy, media literacy, and information literacy, alongside technical and scientific understanding (p. 2). Rather than a single skill, digital health literacy therefore represents a combination of abilities that enable individuals to navigate complex digital environments, assess the quality of information, and apply it effectively in health-related decision-making.

Digital health literacy does not develop in a single, uniform way but emerges through a combination of formal education, social interaction, and experiential learning. Structured educational initiatives play an important role in developing these skills by teaching students how to evaluate online health information using clear criteria. For example, Moretti et al. (2023) describe a course designed to help students “search the internet and evaluate the quality of

medical information” (p. 2), with instruction focused on assessing accuracy, trustworthiness, and reliability. Through guided activities and applied exercises, students practiced evaluating different types of online content, including tasks where “examples of health websites are provided for critical reflection and feedback is provided on the answers given” such as evaluating information from fake websites (Moretti et al., 2023, p. 3). These forms of structured practice help students develop analytical skills that can be applied across diverse digital contexts.

In addition to formal training, digital health literacy is also shaped through social processes. Students develop their ability to evaluate health information through interactions with peers, educators, and healthcare professionals. Guidance from trusted individuals can provide important reference points for assessing competing claims and interpreting complex information. This is reflected in findings that “social support from technology-savvy family members, professionals, and peers were shown to improve digital health literacy”, suggesting that interactions with trusted individuals can strengthen individuals’ ability to evaluate and apply health information (Lopez et al., 2023, p. 15). These social forms of learning complement formal education by helping students refine their judgment and evaluation skills in real-world contexts.

Experiential learning also plays a crucial role in the development of digital health literacy. As students engage with digital content over time, they develop practical skills through trial and error. However, this process is often uneven. Without sufficient guidance or foundational knowledge, repeated exposure to misleading content can reinforce misconceptions rather than correct them. digital health literacy does not develop automatically through exposure alone, but requires intentional support and skill development.

Vaccine Hesitancy Beyond Misinformation

The previous sections show that college students encounter health information within a dense and fast-moving “infodemic” where misinformation circulates widely and is amplified through social media algorithms, peer networks, and repeated exposure. While vaccine hesitancy is often linked to exposure to misinformation, the relationship is not straightforward because although students frequently encounter misleading content, not all become hesitant. This indicates that exposure alone cannot explain the variation in responses. Rather, vaccine hesitancy is shaped by the conditions under which information is encountered, interpreted, and evaluated.

Two factors are particularly important in explaining these differences: trust and digital health literacy. Trust influences how students evaluate the credibility of information sources. When trust in public health institutions is strong, students are more likely to interpret conflicting information in line with scientific guidance. However, when trust is weaker, alternative sources—such as peers, influencers, or online communities—may appear more credible because they feel more relatable or accessible. In digital environments where credible and non-credible voices coexist, trust functions as a key filter through which information is judged. As a result, misinformation becomes more influential when it aligns with existing beliefs or comes from trusted sources.

Digital health literacy adds a critical dimension to this process. While trust shapes how students perceive sources, digital health literacy shapes their ability to critically engage with information. It mediates the relationship between exposure and belief by influencing how information is processed, and it moderates the role of trust by enabling individuals to evaluate sources rather than relying solely on perceived credibility. Students with higher digital health literacy are more likely to question claims, seek additional evidence, and compare perspectives

before forming conclusions. In contrast, those with lower digital health literacy may rely more on intuitive judgments or social cues when faced with conflicting information. In such cases, repeated exposure to misinformation can reinforce uncertainty and contribute to vaccine hesitancy.

The significance of these differences becomes evident when examining their impact on vaccine-related attitudes. Empirical research provides strong evidence linking digital health literacy to vaccine attitudes. Studies consistently show that individuals with higher levels of digital health literacy are more likely to accept vaccination and are less likely to be influenced by misinformation. Nath et al. (2021), in a study of young adults in Bangladesh, found that higher levels of eHealth literacy were positively associated with greater intention to receive a COVID-19 vaccine. They suggest that “a person with better eHealth literacy is supposed to be more efficient in wiping out the misinformation... and thereby ends up with a high VUI” which refers to higher vaccine uptake intention (p. 9). This relationship is further supported by Jiao et al. (2024), who found that vaccination knowledge mediates the relationship between digital health literacy and willingness to vaccinate, indicating that higher literacy contributes to better understanding, which in turn increases vaccine acceptance (p. 7). Similarly, Patil et al. (2021) found that students willing to receive a COVID-19 vaccine reported higher levels of digital health literacy (p. 7), while Melki et al. (2023), in a study of 3,009 university students, found that media literacy positively influenced vaccination intention, whereas belief in conspiracy theories had a negative effect (p. 4365). Together, these findings demonstrate that digital health literacy plays a critical role in shaping vaccine attitudes and can be strengthened through targeted educational and informational interventions.

Taken together, these findings show that vaccine hesitancy cannot be explained by a single factor. It emerges from the interaction between exposure to misinformation, trust in information sources, and the ability to evaluate and interpret information. Among these, interpretation plays a central role. Trust, peer networks, and conflicting information are deeply interconnected, shaping how students make sense of what they encounter. Addressing vaccine hesitancy therefore requires moving beyond a narrow focus on misinformation and toward a deeper understanding of how individuals interpret information within complex digital environments.

Implications for Digital Health Literacy in Higher Education

Recognizing the role of digital health literacy has important implications for both research and practice. Efforts to address vaccine hesitancy should not focus solely on correcting misinformation or increasing the availability of accurate information. While these strategies are necessary, they are insufficient on their own. Without the skills to critically evaluate information, individuals may remain vulnerable to confusion and uncertainty. Strengthening digital health literacy offers a more sustainable approach by equipping students with the tools needed to navigate complex information environments and make informed health decisions.

These implications are particularly significant within higher education. Universities are uniquely positioned to support the development of digital health literacy through structured instruction and targeted interventions. Patil et al. (2021) highlight this need, noting that “these findings support the growing call to make HL and DHL mandatory topics in the university curriculum... or an extra-curricular course that students can participate in for free” (p. 10). This suggests that digital health literacy is not uniformly developed among students and often requires structured support to be effectively cultivated.

These challenges are evident in university contexts, where students frequently encounter conflicting health information through social media and peer networks. Integrating digital health literacy into university curricula, as demonstrated by interventions such as Moretti et al. (2023), offers a practical approach to strengthening students' ability to interpret and apply health information.

As digital information environments continue to evolve, strengthening digital health literacy will remain essential for supporting informed decision-making and reducing vulnerability to misinformation among college students.

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