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Mitigating Health Misinformation on Social Media: The Roles of (Dis)Information Efficacy, Critical Engagement, and Health Literacy

Trisha T. C. Lin[1*], Jeffry Oktavianus[2]

[1]College of Communication & International College of Innovation, Chengchi University, NCCU, Taipei City
[2]Department of English and Communication, The Hong Kong Polytechnic University, Hong Kong SAR
Email: *trishlin@nccu.edu.tw, oktavianus.jeffry@polyu.edu.hk

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Abstract

Although social media literacy and health literacy are vital for mitigating health misinformation, their structural interrelationships remain underexplored. This study examines how social media information efficacy, social media disinformation efficacy, and critical social media posting are related to multidimensional health literacy and preventive health behaviors. Using structural equation modeling on a quota sample of social media users in Taiwan region (N = 512), results showed that social media information efficacy was positively related to critical posting practices, which were strongly associated with COVID-19 health literacy. Social media information efficacy was positively related to four dimensions of health literacy—accessing, understanding, appraising, and applying health information—whereas social media disinformation efficacy was related to the understanding dimension. Comprehensive health literacy was positively related to preventive health behaviors. The findings highlight the differentiated mechanisms of digital efficacy dimensions and underscore the value of integrating information efficacy, critical practices, and health literacy to strengthen resilience to health mis/disinformation.

Keywords

Health Misinformation, Social Media Literacy, Social Media Disinformation Efficacy, COVID-19 Health Literacy, Preventive Health Behaviors

1. Introduction

Algorithmically governed social media platforms, serving billions of global users, have become inherently vulnerable to strategic manipulation, posing persistent

threats to digital information integrity (Faris, 2019). Health misinformation is a particularly consequential dimension of this problem because inaccurate or misleading claims can influence individuals' decisions about disease prevention, medical treatment, and personal well-being. Recent reviews characterize online health misinformation as an enduring public health problem that extends beyond the COVID-19 pandemic, which intensified its scale, visibility, and public health consequences (Kbaier et al., 2024). Within contemporary public health, the rapid diffusion of online health misinformation and disinformation creates severe socio-political and epidemiologic risks (World Health Organization [WHO], 2020, 2021). As social network architectures prioritize high-engagement content over accuracy, unverified medical claims rapidly diffuse across digital ecosystems, frequently misleading users into adopting non-evidence-based protective measures (Oktavianus et al., 2022). Social media health disinformation may also arouse negative emotions, polarize public perspectives, fuel vaccine disputes, and weaken trust in authoritative institutions (Faris et al., 2020). Automated accounts and bot-driven campaigns can further amplify misleading information and increase its apparent popularity and credibility (Tagliabue et al., 2020).

Health misinformation should be understood as an enduring feature of contemporary digital communication. Misleading health claims after the COVID-19 pandemic continue to circulate across topics regarding infectious diseases, vaccination, cancer, nutrition, reproductive health, and commercial wellness products (Denniss & Lindberg, 2025; Kbaier et al., 2024). Social media users exposed to substantial amounts of health misinformation tend to have difficulty distinguishing accurate from inaccurate health content (Gaysynsky et al., 2024). Moreover, generative artificial intelligence creates additional challenges by enabling the rapid production of realistic, personalized, and seemingly authoritative health misinformation with inaccuracies or unsupported recommendations (Nutbeam, 2023). Understanding how individuals evaluate, question, and respond to questionable health claims is critical not only for public health emergencies, but also for everyday health decision-making.

In response to pervasive informational hazards, scholars, practitioners, and governance bodies have increasingly prioritized human-centric interventions. Social media literacy, referring to the key ability to access, seek, and appraise social media information, is identified as a critical solution to remedy the situation (Livingstone, 2014; Vanwynsberghe et al., 2014). Although literature recognizes the potential of social media literacy in combating disinformation (Cho et al., 2024; Polanco-Levicán & Salvo-Garrido, 2022), the specific underlying mechanisms through which distinct literacy sub-dimensions counter health-related falsehoods and translate into critical engagement and health behavior remain insufficiently explicated.

Recent media-literacy research further emphasizes that literacy interventions should strengthen users' abilities to interpret messages, evaluate evidence, and make reasoned judgments about specific claims (Austin & Domgaard, 2024). In the con-

text of health misinformation, the present study distinguishes between two related but conceptually different forms of perceived social media efficacy: social media information efficacy reflects users' self-perceived ability to retrieve and evaluate platform information to solve real-world problems (Lin & Bautista, 2017), while this study specifies social media disinformation efficacy as a new skill to recognize false or misleading information, counter deliberately engineered falsehoods, and cope appropriately with the problems. These forms of efficacy may encourage users to engage more critically with social media posts. Concurrently, health literacy acts as a crucial barrier against infodemic risks, enabling individuals to critically evaluate medical guidance and adopt preventative health behaviors (Melki et al., 2021; Niu et al., 2022). Despite growing scholarly focus on these individual constructs, few empirical studies have systematically examined how social media information efficacy, social media disinformation efficacy, and multi-dimensional health literacy interact to mitigate health misinformation.

The Taiwan region presents a salient empirical setting to investigate these dynamics. Characterized by exceptionally high social media saturation alongside persistent, sophisticated external and internal information operations, the Taiwan region has frequently experienced public health misinformation that challenged institutional communication (Al Jazeera, 2021; Chen et al., 2022). In response, state agencies, third-party fact-checking organizations, and digital platform operators in the Taiwan region have aggressively implemented public digital literacy initiatives to strengthen democratic and information resilience (Wei, 2021). Consequently, the Taiwan region serves as an ideal locale for examining how multifaceted digital competencies function in a high-risk information environment.

To address the identified research gaps, this study utilizes a national web survey to examine the relationships among social media information efficacy, social media disinformation efficacy, and critical social media posting behaviors. Furthermore, it investigates the association among these digital competencies, four core dimensions of health literacy (i.e., accessing, understanding, appraising, and applying health information), and evidence-based preventive health behavior intentions. By mapping these cognitive and behavioral associations, this study advances a theoretical framework for how digital literacies collectively cushion the public against health misinformation. It also identifies user-level mechanisms to reduce the harmful effects of health misinformation and strengthen informed health decision-making. As this study regards the pandemic as a high-information-risk empirical setting for public health, the findings are especially visible and relevant to future disease outbreaks, chronic-disease misinformation, misleading wellness claims, and AI-generated health content.

2. Literature Review

In the post-truth era, the boundaries between facts and fakes are increasingly blurry; thus, misinformation and disinformation continue to proliferate (Lewandowsky et al., 2017). Misinformation refers to inaccurate and misleading infor-

mation without the intention to harm, whereas disinformation is intentionally deceptive information (Rubin, 2019). Both terms describe erroneous and unverified information. In recent years, health mis- and disinformation have garnered growing attention due to the detrimental consequences, including poorer quality of life and risk of mortality (Swire-Thompson & Lazer, 2020). The proliferation of disinformation was even more alarming during the COVID-19 pandemic. As there was a vast stream of both correct and incorrect Coronavirus contents on social media, WHO called such information overabundance phenomenon as "infodemic" (Radu, 2020). Later, UNESCO coined the term "disinfodemic" which specifies intentionally misleading health disinformation amid the pandemic to manipulate beliefs, emotions, and opinions (Posetti & Bontcheva, 2020). This study focuses on investigating health disinformation with malicious intention to spread COVID-19 falsehoods to harm people's mental or physical well-being. It is pressing to examine the roles of digital literacy (i.e., social media (dis-)information efficacy and health literacy) in affecting users' taking preventative measures.

2.1. Social Media Health Mis-/Dis-Information

Since the COVID-19 pandemic hit many parts of the globe in early 2020, people were forced to practice social distancing and work or study from home, which intensified social media dependency, because users relied on the platforms to connect and socialize (Kothari et al., 2022), as well as obtain latest information for health purposes (Wang et al., 2019). Unfortunately, online information also includes unverified messages, which are prone to disinformation and manipulation (Faris, 2019). Social media algorithms that enhance filter bubbles and form stratospheres worsen echo chamber effects to reinforce like-minded perspectives (Cinelli et al., 2021). The increasing social media use may shape the way people cope with the health crisis and even increase societal fragmentation or polarization.

As social media discussions are loaded with inaccurate health claims to arouse public fear and panic (Gallotti et al., 2020), social media use increases people's perceived threat of COVID-19 misinformation, resulting in their compliance with heath recommendations (Ranjit et al., 2021). Pandemic disinformation exposed people to high infectious risks when they underestimated the disease danger and the value of taking effective measures (e.g., social distancing or mask wearing) (Faris, 2019). During the COVID-19 pandemic, health misinformation on social media fueled distrust, conspiracy theories and polarization (Faris et al., 2020). When people hold polarized partisan beliefs, they are likely to have distinctive attitudes towards preventative measures (e.g., mask-wearing).

In addition, malicious socialbots spread health misinformation and increase public health threats (Broniatowski et al., 2018). During the pandemic, bot activities have become rampant to promote vaccination misinformation (Kim, 2020), amplifying negative emotions and polarization (Shi et al., 2020). The growing health-related social media misinformation has spurred efforts to develop interventions to curb the spread of falsehoods (Chou et al., 2018). Some social media

companies took part in improving digital literacy to combat prolific health disinformation (Manca et al., 2021). It is essential to foster the public's critical thinking and efficacy to discern credible health information and develop capabilities to detect fake news and social media disinformation.

2.1.1. Social Media Literacy

The conceptualization of social media literacy is derived from media literacy studies (Schreurs & Vandenbosch, 2020; Vanwynsberghe et al., 2014; Yeh & Swinehart, 2020). According to Livingstone (2014), social media literacy extends the scope of media literacy traditions to include decoding, evaluating, and creating communication tasks, such as multimodal user-generated content (UGC) and online social interactions (e.g., relationships, networks, privacy). Social media literacy equips users with the technical and critical cognitive competencies to engage in social interaction and communication (Daneels & Vanwynsberghe, 2017), which entails both efficacies to sensitize and respond to social media information and to create content for self-expression (Polanco-Levicán & Salvo-Garrido, 2022).

Social media literacy is a multi-dimensional concept that requires users to develop technical, digital, and critical cognitive skills (Manca et al., 2021). It involves the knowledge and skills to create, review, organize, produce, and share social media content, as well as analyzing and assessing information relevance and reliability. Schreurs and Vandenbosch's (2020) defined social media literacy as "the extent to which cognitive and affective structures are present among users to ensure the risks of interactions with social media content are mitigated and the opportunities are maximized (p. 2)." The cognitive structures involve social media features and interpersonal communication dynamics, while affective structures stimulate social media users' spontaneous emotions.

Social media literacy studies receive growing scholarly attention, which identifies the significance of users' efficacy in using social media to prevent them from harmful effects. Gordon et al. (2020) developed the social media literacy program to improve adolescents' perceived body image and well-being. Nagle (2018) discussed the crucial effect of social media literacy on Twitter users' cyber-violence issues. It is worth noting that individuals must possess not only the ability to assess the social media information quality, but also the skills to protect themselves from the harmful effects of disinformation. This study conceptualizes the abilities as "social media information efficacy" and "social media disinformation efficacy," which are elaborated in the subsequent sections.

2.1.2. Social Media Information Efficacy

Extending Bandura's self-efficacy theory, Hocevar et al.'s (2014) proposed concept of social media self-efficacy refers to the user's level of skills and capabilities in creating social media content and finding credible social media information. Individuals with high levels of social media self-efficacy tend to seek out various opinions and verify the information credibility. During the pandemic, people who

worked/studied from home or got quarantined heavily relied on social media to seek latest COVID-19 information, when inaccurate and unverified online information was rampant. People ought to have the ability to effectively navigate social media, find and evaluate accurate health information. During the pandemic, social media information efficacy is particularly crucial, as it seriously influences people's health decisions, such as taking precautions (Zhou et al., 2022).

This study adopted Lin and Bautista's (2017) social media information efficacy, referring to individual abilities to search, find, understand, appraise, and apply social media information to address problems. In the context of COVID-19, social media information efficacy comprises two key components: health information seeking (i.e., ability to seek and find health information) and health information appraisal (i.e., ability to understand and appraise health information), both of which are essential skills for making informed health decisions (Soellner, Huber, & Reder, 2014).

2.1.3. Social Media Disinformation Efficacy

Recent studies have discovered that socialbots (Lin & Szeto, 2021; Lin & Wang, 2020) and deepfakes (Akhmedova, 2020) have been used to disseminate political or health mis/disinformation, which manipulated public opinions and caused severe sociopolitical impacts. During the COVID-19 pandemic, many netizens who lacked medical expertise posted false information about cures and treatments on social media (Tagliabue et al., 2020). This alarming trend threatened public health and safety. According to Melki et al. (2021), the more people trusted social media information, the more likely they were to believe COVID-19 misinformation. COVID-19 misinformation increases the risks of infection by misleading people about the danger of the disease and the effectiveness of taking preventive measures (Faris, 2019). Past research finds that health mis/disinformation on social media aroused fearful sentiments, exacerbated polarization, and stirred doubts about vaccination (Broadbent, 2019; Chou et al., 2020; Melki et al., 2021).

Few prior studies on information efficacy have examined individuals' perceived ability to identify misinformation or disinformation as part of the problem-solving process. Grounded in general self-efficacy theory, Hopp (2022) found that individuals with higher levels of Facebook-based fake news self-efficacy—that is, confidence in their ability to identify factually inaccurate current-events information on Facebook—performed better on a fake news identification and classification task. Hopp and Kazmi (2023) demonstrated that mis- and disinformation self-efficacy (MDSE) moderates the link between social media use and political knowledge in environments saturated with inaccurate or biased content. Crucially, low levels of MDSE induced pronounced amotivation, substantially reducing users' likelihood of engaging in critical political information tasks.

To empower citizens to cope with online health mis/disinformation, individuals must be equipped with specific literacy to develop their capability of mitigating adverse impacts and solving associated problems (Dib et al., 2022). Adapting Schwarzer et al.'s (2005) "social media misinformation efficacy," this study proposes the con-

cept of "social media disinformation efficacy" for coping with challenging disinformation situations; it defines "social media disinformation efficacy" as "individual competence to prevent oneself from disinformation problems on social media." This present study is the first to examine how social media disinformation efficacy is associated with users' decisions and behaviors in the health misinformation context.

2.1.4. Critical Social Media Posting

Social media platforms encourage a participatory culture for prosumers to post, like, share, and comment on social media content (Dolan et al., 2019). High social media engagement requires users' active participation in generating, sharing, or commenting on social media content (Malthouse et al., 2013). Social media usage has increased tremendously for reducing uncertainty during the COVID-19 lockdowns, when people read and shared pandemic information on Facebook or X, as well as expressed fear and anxiety towards health traumatic events (Yousri Marzouki et al., 2021). Despite the advantages of social media to democratize and empower users for creating content and voicing out opinions, these platforms with abundance of unverified, inaccurate, or even misleading information lack effective gatekeeping and fact-check mechanisms (Gallotti et al., 2020). Arbitrary social media posting practices contribute to the spread of COVID-19 myths and disinformation, exacerbating the (dis)infodemic (Melki et al., 2021).

Improving social media users' participatory behaviors is crucial, as their efficacy will influence the content they post, share, and comment on. Highly media-literate users tend to engage in critical verification practices when interacting with social media posts and sharing. They also exhibit a higher sense of responsibility when posting and sharing health information on social media (Schreurs & Vandenbosch, 2020). Thus, social media literacy, improving critical and active social media behaviors, is likely to mitigate the (d)infodemic (Melki et al., 2021). Extending beyond the COVID-19 context, Hopp (2022) conceptualized "Facebook-based fake news self-efficacy" as a form of social media disinformation literacy and found that it was negatively associated with users' likelihood of sharing fake news on Facebook, an indicator of critical social media use. Based on the literature, the study proposes the hypotheses below:

H1: Social media information efficacy is positively associated with critical social media posting.

H2: Social media disinformation efficacy is positively associated with critical social media posting.

2.2. COVID-19 Health Literacy and Social Media Use

Many scientific investigations examined how people fall for health misinformation and emphasized media and health literacy strategies and actions against falsehoods (Damian & Gallo, 2020; Melki et al., 2021). As inaccurate health content tends to misinform users, it makes health literacy essential in the digital age

(Swire-Thompson & Lazer, 2020). Gaysynsky et al. (2024) demonstrated that low subjective digital literacy corresponds with heightened difficulty discerning online health misinformation, which subsequently predicts a greater propensity to utilize social media information when making health decisions. Health literacy involves the ability to access, understand, appraise, and apply health information in different contexts and situations related to healthcare, media, or the Internet (Lin & Bautista, 2017). Empirical studies find that individuals with limited digital health literacy exhibit a diminished capacity to critically evaluate online health content, thereby heightening their susceptibility to misinformation (Nugrahani, 2022). High-level eHealth literacy was related to greater intentions to correct or respond to mental health misinformation on social media (Hoffner et al., 2026). It is essential to develop initiatives for bolstering digital health literacy and building systemic resilience against deceptive health narratives (Nugrahani, 2022).

Amid the Coronavirus pandemic, it gains growing importance to seek reliable online health information and identifying mis/disinformation for making decisions to take preventative measures (Okan et al., 2020). Bin Naeem and Kamel Boulos (2021) identified low digital health literacy as a direct contributor to the infodemic, and social media affordances (e.g., ease of sharing and social bot) exacerbated the widespread of unverified contents in the unregulated network environments. Individual health literacy and the ability to detect fake news are positively associated with his acceptance of COVID-19 preventative measures (Montagni et al., 2021). Improving COVID-19 health literacy can strengthen infodemic preparedness by mitigating social media mis/disinformation harm (Bin Naeem & Kamel Boulos, 2021). However, arbitrary social media posting practices result in the spread of COVID-19 myths and disinformation (Melki et al., 2021).

Drawn upon the European Health Literacy Survey Questionnaire (HLS-EU-Q), Okan et al. (2020) developed a four-dimension measure of COVID-19-related health literacy: the media rich measure encompasses aspects of "accessing" (e.g., finding online information about COVID-19), "understanding" (e.g., understanding information to protect oneself from coronavirus infection), "appraising" (e.g., judging the reliability of COVID information) and "applying" (e.g., deciding actions to protect oneself from coronavirus disease). This study adapted Okan's digital COVID-19 health literacy measurement. Facing pandemic uncertainty, critical social media posting that demonstrates responsible participatory behaviors for posting and sharing health information on social media (Schreurs & Vandenbosch, 2020) is likely to be positively associated with COVID-19 health literacy.

Thus, the study proposes the following hypothesis:

H3: Critical social media posting is positively associated with COVID-19 health literacy.

2.3. COVID-19 Health Literacy and Preventive Measures

During the COVID-19 health crisis, social media played a crucial role in helping

people exchange pandemic information and discuss prevention measures (Zhou et al., 2022) to reduce uncertainty and anxiety (Yousri Marzouki et al., 2021). Unfortunately, health disinformation on social media also misled many. Exposure to misinformation had led people to underestimate Coronavirus health hazards, which in turn, reduced their compliance with health recommendations (Ranjit et al., 2021). Adopting preventive measures during the pandemic, such as avoiding crowds and staying at home, is essential to reduce virus spread and lower infection risk (Melki et al., 2021). For example, the Taiwan region initially succeeded in containing COVID-19 because the public adhered to precautionary steps such as physical distancing and facial masking (Steinbrook, 2021).

Coronavirus prevention, like vaccination, is not just a public health issue, but also a political battleground. Centers for Disease Control and Prevention (CDC) in many countries have heated debates eliciting polarized responses about the effectiveness of digital pandemic control measures and COVID-19 vaccination. A plethora of mis/disinformation and conspiracy theories that feed on people's fears and anxieties about the pandemic were virally disseminated to manipulate public opinions, stir negative emotions, and arouse distrust in government or health authorities (Sun et al., 2022). Debunking health-related fake news improves with public adoption of COVID-19 preventative measures (Broadbent, 2019). Health literacy prevents people from believing in COVID-19 disinformation and its adverse consequences (Choukou et al., 2022). Health literacy increased Japanese engagement in preventive actions (Fukuda et al., 2021). Montagni et al. (2021) also found that French people with higher health literacy were more capable of detecting fake news and taking preventive measures. Additionally, Patil et al. (2021) discovered that Americans' health literacy and digital health literacy were associated with overall compliance with COVID-19 preventive practices. Thus, this study proposes:

H4: COVID-19 health literacy is positively associated with the adoption of preventive measures.

Previous research has highlighted the critical role of both social media literacy and health literacy in mitigating the impacts of the COVID-19 pandemic. However, scholarly examinations of how these two forms of digital literacy relate to each other remain limited. Although multi-dimensional frameworks of digital COVID-19 health literacy have been proposed (Okan et al., 2020), the interrelationships among social media information efficacy, social media disinformation efficacy, and critical social media posting, as well as their associations with COVID-19 health literacy, have yet to be systematically investigated. Hence, this study will address the gaps by proposing:

RQ1: To what extent is social media information efficacy associated with four dimensions of COVID-19 health literacy (i.e., accessing, understanding, appraising, and applying health-related information)?

RQ2: To what extent is social media disinformation efficacy associated with four dimensions of COVID-19 health literacy (i.e., accessing, understanding, ap-

praising, and applying health-related information)?

RQ3: To what extent is critical social media posting associated with four dimensions of COVID-19 health literacy (i.e., accessing, understanding, appraising, and applying health-related information)?

Figure 1 illustrates the research model consisting of the hypotheses.

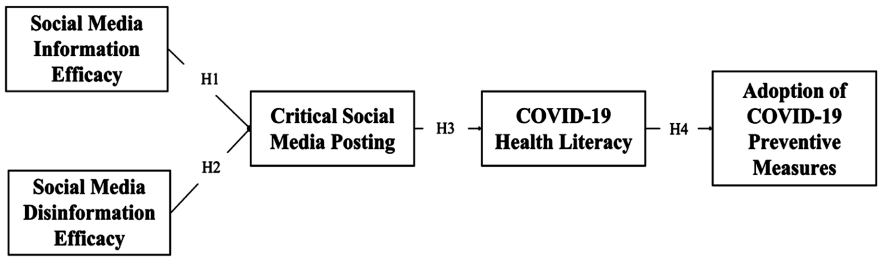


Figure 1. Proposed research model.

2.4. Theoretical Foundation and Conceptual Framework

Self-efficacy theory and literacy perspectives provide complementary foundations for understanding how individuals navigate health information in social media environments. Self-efficacy refers to individuals' beliefs about their capabilities to perform particular tasks or manage specific challenges (Bandura, 1997). Importantly, efficacy beliefs are domain-specific and should be distinguished from knowledge or skills themselves. Applied to social media, individuals may therefore differ in their perceived capabilities to navigate credible information and to manage misleading information. Recent research supports the relevance of such efficacy beliefs to misinformation contexts. Hopp (2022), for example, conceptualized fake news self-efficacy as confidence in identifying factually incorrect information and found it to be related to actual fake-news identification. Hopp and Kazmi (2023) further demonstrated the theoretical relevance of mis- and disinformation self-efficacy for understanding how individuals navigate social media information environments.

Building on this perspective, the present study distinguishes social media information efficacy and social media disinformation efficacy as two related but distinct efficacy-based dimensions of social media literacy. The former is primarily information-oriented and proactive, whereas the latter is more threat-oriented and defensive. Thus, although both concern individuals' perceived capabilities within the general social media information environment, they address different informational demands and should not be treated as interchangeable. This distinction is consistent with multidimensional conceptualizations of social media literacy, which emphasize that effectively navigating social media requires different competencies for selecting, evaluating, and engaging with information and networks (Cho et al., 2024).

These efficacy beliefs are conceptually distinct from critical social media posting, which represents enacted information practice rather than perceived capability. In the present study, critical social media posting specifically concerns COVID-19-

related practices, including checking original sources and comparing coronavirus information with expert or other credible sources before posting or sharing. Self-efficacy theory suggests that individuals who perceive themselves as more capable of navigating information challenges may be more willing to engage in effortful information behaviors (Bandura, 1997). Accordingly, general social media information and disinformation efficacy may become relevant when individuals encounter COVID-19 information and decide whether and how to verify it before dissemination. However, perceived capability and enacted practice remain theoretically distinct: believing that one can navigate information effectively does not necessarily mean that one will consistently engage in verification. Research during the COVID-19 pandemic similarly highlights critical posting and verification practices as important components of responses to misinformation on social media (Melki et al., 2021).

COVID-19 health literacy represents a further distinct construct because it concerns competence in processing and using health information rather than perceived capability in navigating social media. Health literacy encompasses individuals' abilities to access, understand, appraise, and apply health information to make health-related judgments and decisions (Sørensen et al., 2012). COVID-19 health literacy applies these competencies specifically to coronavirus-related information and the challenges posed by the COVID-19 infodemic (Okan et al., 2020). Critical social media practices such as source checking, information comparison, and consultation of credible sources may therefore be particularly relevant to health literacy because they expose users to more carefully evaluated information that can be accessed, understood, appraised, and applied. Higher health literacy, in turn, provides individuals with informational resources for understanding health risks and recommendations and is associated with COVID-19 preventive behaviors (Wang et al., 2021).

Collectively, the framework distinguishes four theoretically connected but non-redundant constructs: social media information efficacy reflects perceived capability to navigate credible social media information; social media disinformation efficacy reflects perceived capability to manage disinformation-related challenges; critical social media posting reflects enacted verification practices concerning COVID-19 information; and COVID-19 health literacy reflects health-specific competence in accessing, understanding, appraising, and applying coronavirus-related information. The framework thus connects three levels of information engagement—perceived social media capability, enacted critical information practice, and health-information competence—with preventive health behavior as the subsequent behavioral outcome.

3. Method

From the initial detection of COVID-19 in late 2019 through the post-pandemic stabilization phase in 2026, pandemic response trajectory in the Taiwan region can be categorized into four phases: early proactive containment and successful

technological epidemic prevention (2019-early 2021), local outbreak surge and vaccine scarcity (mid-2021), Omicron transition and mitigation (2022), and long-term endemic integration (2023-2026). This online survey was conducted in late August 2021, when the Taiwan region reached a highly uncertain turning point in its COVID-19 pandemic management and its battle against health misinformation. The Taiwan region began the COVID-19 vaccination in March 2021, later than other countries. Having recently lowered its COVID-19 alert from Level 3 to Level 2 in late July, 2021, the public in the Taiwan region faced a new set of challenges, including rising anxiety over the Delta variant, global vaccine supply shortage, and the slow rollout of local vaccination. In April 2022, it followed the global trend and began "co-existing with virus" public health policy (TCDC, 2023).

Since COVID-19 emerged in the Taiwan region, it has encountered growing threats of health misinformation, especially on social media. The widespread COVID-19 health misinformation was primarily disseminated via Line's closed-loop networks, hyper-partisan Facebook and PTT (influential forum in the Taiwan region), and coordinated disinformation networks. In early 2020, foreign disinformation campaigns disseminated falsehoods to stir public panic. In May 2021, public trust in the government's epidemic control plummeted, while the threat of COVID-19 misinformation increased. Empirical research on digital media landscape in the Taiwan region during 2021 shows that the volume and spread of fake news had a significant negative effect on vaccination (Chen et al., 2022). Regarding COVID-19 mis/disinformation as a serious threat, the Taiwan region is a suitable research site to investigate how various factors (social media (dis)information efficacy, critical social media posting, and health literacy) mitigate the negative impacts on public health outcomes, such as the adoption of preventive measures.

3.1. Procedure and Participants

This web survey recruited social media users in the Taiwan region with misinformation or disinformation experiences in August 2021, which was administered by InsightXplorer, a professional survey firm, by sending emails or LINE messages to eligible cyber panelists. A random selection process was applied to minimize the potential self-selection bias. The pre-set filtering criteria include social media users aged 18 years or older who have encountered misinformation or disinformation. Quota sampling was used to fit the demographic profile of 2020 social media users in the Taiwan region in terms of gender, age, and educational attainment (IXresearch, 2020). The research team developed an English-Chinese bilingual questionnaire and pretested it with ten social media users to improve clarity and readability. Prior to the survey administration, this study obtained the Institutional Review Board's approval at the researchers' affiliated university.

The respondents answered the questionnaire via IXsurvey, a comprehensive online survey system. In total, 8438 emails were sent out, and 983 were completed

with valid responses. The 11.64% response rate is quite plausible for an unsolicited online survey. After adjusting for quota sampling and cleaning the data, the survey obtained 750 valid respondents fitting the demographic quota (age, gender and education) of social media users in the Taiwan region. The final analytic sample comprised 512 respondents because they reported prior COVID-19-related critical posting experiences. Among them, around half of the respondents are male (n = 270, 52.7%). The majority belong to the age groups of 30 - 39 years old (n = 130, 25.4%) and 40 - 49 years old (n = 135, 26.4%). Most respondents have bachelor's degrees (n = 290, 56.6%). The median monthly income range was NT$40,001 - 60,000.

3.2. Measurements

We first conducted confirmatory factor analysis for all latent variables. The findings showed that one item from critical social media posting, one item from COVID-19 health literacy, and two items from COVID-19 preventive measures had low factor loadings and were removed. The results after dropping these four items suggested a good model fit, χ^2/df = 2.70, p = .000, TLI = .92, CFI = .93, RMSEA = .06 (90% CI = .054, .061), SRMR = .03. The factor loadings of the final items were all above .60. Moreover, Cronbach's α of each construct was above .70. The average variance extracted (AVE) coefficients exceeded .50 for all constructs except preventive behavior (AVE = .457; Composite Reliability [CR] = .770; see **Appendix** Table A1). Although the AVE for preventive behavior was slightly below the conventional .50 criterion, its composite reliability remained acceptable. Discriminant validity was also assessed using the Fornell-Larcker criterion. The square root of the AVE for each latent construct exceeded its correlations with the other constructs, supporting discriminant validity (see **Appendix** Table A2). **Appendix** Table A3 shows the complete item list.

Social media information efficacy (α = .92, M = 3.67, SD = .70). The items were adapted from Lin and Bautista (2017). Respondents indicated the extent to which they agreed with statements such as "I can tell quality from information provided by social media," using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Social media disinformation efficacy (α = .91, M = 3.54, SD = .72). It was adapted from Schwarzer et al.'s (2005) perceived "social media misinformation efficacy" items; its responses were captured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Respondents indicated their agreement with statements such as "I can prevent myself from getting problems caused by disinformation on social media."

Critical social media posting (Pearson's r = .82, M = 3.54, SD = .99). It was adapted from Melki et al.'s (2021) three-item measurement. We dropped one item because of its low factor loading. Respondents were first asked about their frequency of posting COVID-19-related news on social media. After removing those without critical social media posting experiences, the 512 respondents were re-

quired to indicate the extent of their social media practices, such as "I checked the original sources of the news before posting," using a 5-point Likert scale (1 = never, 5 = always).

COVID-19 health literacy (α = .96, M = 3.78, SD = .56). The 22-item measurement was adapted from Okan et al. (2020), containing four dimensions: accessing (α = .91, M = 3.90, SD = .62), understanding (α = .93, M = 3.84, SD = .63), appraising (α = .85, M = 3.68, SD = .63), and applying health-related information (α = .86, M = 3.64, SD = .63). The respondents answered statements, like "How easy or difficult for you to do the following?" with a 5-point Likert Scale (1 = very difficult, 5 = very easy). After CFA, one appraising item was removed because of poor factor loadings.

COVID-19 preventive measures (α = .77, M = 4.36, SD = .56). This was assessed using six items from Melki et al. (2021) to evaluate people's beliefs in COVID-19-related mis/disinformation. Two items, "staying at home" and "avoiding touching face," were dropped as a result of the poor factor loadings. Respondents were asked about their frequency of adopting preventive measures using a 5-point Likert scale (1 = never, 5 = always).

Control variables included demographic factors (e.g., age, gender, income, and educational attainment) and perceived exposure to misinformation, which asked participants to indicate the extent to which they agree with the statement "I encountered misinformation." They responded with a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree, M = 3.79, SD = .76).

3.3. Data Analysis

The analyses were conducted at two complementary levels. First, structural equation modeling (SEM) was performed using IBM SPSS Amos v29 to test the hypothesized overall structural relationships among social media information efficacy, social media disinformation efficacy, critical social media posting, COVID-19 health literacy, and preventive behaviors. Five variables were controlled (i.e., age, gender, monthly income, educational attainment, and perceived misinformation exposure). In this model, COVID-19 health literacy was treated as an overall latent construct to capture the broader health-information competence represented by its accessing, understanding, appraising, and applying components. This approach enabled to test a parsimonious theoretical relationship between social media efficacy, social media disinformation efficacy, critical social media practices, health literacy, and preventive behaviors. As COVID-19 health literacy is multidimensional, RQ1 - RQ3 concern whether its dimensions may be differentially associated with social media efficacy, social media disinformation efficacy, and critical posting. Hierarchical regression analyses were conducted separately for accessing, understanding, appraising, and applying health information using IBM SPSS v29. Thus, the regression analyses complement the SEM by identifying dimension-specific patterns that may be obscured when health literacy is examined as an overall construct.

4. Results

The SEM was conducted to test H1 - 4. The indices showed a good model fit, $\chi^2/df = 2.49$, $p = .000$, TLI = .92, CFI = .92, RMSEA = .05 (90% CI = .051 - .057), SRMR = .05. Figure 2 illustrates the SEM results. SEM results show a significant positive relationship between social media information efficacy and the critical social media posting ($\beta = .39$, $p < .001$), but no significant association was found with social media disinformation efficacy ($\beta = .08$, $p > .05$), supporting H1 but not H2. The critical social media posting was positively associated with COVID-19 health literacy ($\beta = .42$, $p < .001$), supporting H3. Finally, the results revealed that COVID-19 health literacy was significantly related to the adoption of preventive measures ($\beta = .38$, $p < .001$), lending support to H4.

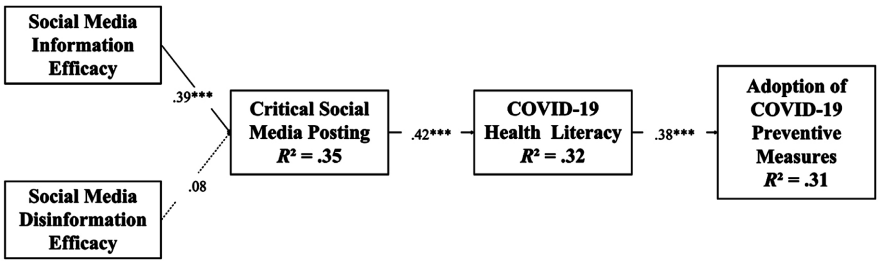


Figure 2. SEM results. Notes: Standardized regression coefficients were reported. *$p < .05$; **$p < .01$; ***$p < .001$. $n = 512$.

Sensitivity analysis. To examine whether the findings were sensitive to the post-hoc removal of four low-loading items, we re-estimated the measurement and structural models using the original item specifications. The refined CFA showed improved fit relative to the original specification (CFI = .930 vs. .914; TLI = .924 vs. .908; RMSEA = .058 vs. .059). Similarly, the refined structural model showed improved fit (CFI = .924 vs. .907; TLI = .916 vs. .898; RMSEA = .054 vs. .055). More importantly, the direction, magnitude, and statistical significance of the focal structural relationships remained substantively unchanged across the two specifications, indicating that our key findings were robust to the item-deletion decisions.

A series of hierarchical multiple regressions were conducted to examine the extent to which social media information efficacy (RQ1), social media disinformation efficacy (RQ2), and critical social media posting (RQ3) were associated with the four dimensions of COVID-19 health literacy (i.e., accessing, understanding, appraising, and applying health-related information, see Table 1). The results show that social media information efficacy was significantly associated with accessing ($\beta = .24$, $p < .001$), understanding ($\beta = .23$, $p < .001$), appraising ($\beta = .36$, $p < .001$), and applying health-related information dimensions ($\beta = .29$, $p < .001$). In comparison, social media disinformation efficacy was only significantly, yet weakly related to understanding ($\beta = .14$, $p < .05$). Additionally, the results revealed strong and positive relationships between critical social media posting and COVID-19 health liter-

acy dimensions of accessing (β = .19, $p < .001$), understanding (β = .20, $p < .001$), appraising (β = .18, $p < .001$), and applying health-related information (β = .20, $p < .001$). Regarding control variables, perceived exposure to misinformation was significantly and positively associated with accessing (β = .18, $p < .001$), understanding (β = .15, $p < .001$), and ha modest but statistically significant relationship with applying health-related information dimensions (β = .10, $p < .05$). Moreover, age was significantly related to accessing (β = .09, $p < .05$) and applying (β = .10, $p < .05$). Gender also had significant relationships with accessing (β = .10, $p < .05$) and understanding dimensions (β = .10, $p < .05$).

Table 1. Hierarchical regression for dimensions of COVID-19 health literacy.

Variables	Accessing (DV)	Understanding (DV)	Appraising (DV)	Applying (DV)
Block I. Control Variables				
Age	.09 (.02)*	.07 (.02)	.07 (.02)	.10 (.02)*
Gender (2 = female)	.10 (.05)*	.10 (.05)*	.06 (.05)	.05 (.05)
Educational Attainment	.00 (.03)	.01 (.03)	−.03 (.03)	.01 (.03)
Income	.00 (.02)	.00 (.02)	−.02 (.02)	−.04 (.02)
Exposure to Misinformation	.18 (.04)***	.15 (.04)***	.08 (.04)	.10 (.04)*
Incremental R^2	.15	.15	.10	.12
Block II. Efficacy				You
SMIE	.24 (.05)***	.23 (.05)***	.36 (.06)***	.29 (.06)***
SMDE	.09 (.05)	.14 (.05)*	.04 (.05)	.11 (.05)
Incremental R^2	.11	.13	.16	.15
Block III. CSMP				
CSMP	.19 (.03)***	.20 (.03)***	.18 (.03)***	.20 (.03)***
Incremental R^2	.03	.03	.02	.03
Total R^2	.29	.31	.28	.30

Notes: SMDE = social media disinformation efficacy. SMIE = social media information efficacy. CSMP = critical social media posting. Final standardized regression coefficients are entered. Standard errors are in parentheses. *$p < .05$; **$p < .01$; ***$p < .001$.

5. Discussion and Conclusion

Although a growing body of literature has examined the respective roles of social media literacy and health literacy in mitigating the COVID-19 (dis)infodemic, relatively little research has explored the relationships between these two forms of digital literacy. Addressing this gap, this cross-sectional study examines the relationships between two efficacy dimensions—social media information efficacy and disinformation efficacy—and critical social media practices, as well as their associations with COVID-19 health literacy and the adoption of preventive be-

haviors. By clarifying these relationships, the study highlights how distinct dimensions of digital literacy may function differently in promoting preventive health behaviors and mitigating the adverse consequences of health mis/disinformation during public health emergencies. Specifically, this study is among the first to investigate the interrelationships among social media information efficacy, disinformation efficacy, critical social media posting, COVID-19 health literacy, and individuals' intentions to adopt preventive measures. The findings reveal that, in the context of health mis/disinformation, different dimensions of digital literacy are related to health literacy and preventive behaviors in distinct ways.

5.1. Discussions

The importance of social media literacy has been recognized over the past decade. It emphasizes individual social media information efficacy for accessing, seeking, and appraising content on social media platforms (Livingstone, 2014; Vanwynsberghe et al., 2014). This study reaffirms that individuals with higher levels of social media information efficacy are more likely to engage in critical social media posting by checking the original sources of coronavirus-related news and comparing the information with expert or other credible sources before posting. These critical social media practices, in turn, are positively related to greater COVID-19 health literacy, which increases the likelihood of engaging in preventive actions. Social media information efficacy also shows strong and significant associations with four dimensions of COVID-19 health literacy (Okan et al., 2020): accessing, understanding, appraising, and applying health information.

Social media information efficacy refers to individuals' perceived competence in identifying and using credible, truthful, and verified information on social media. Our findings indicate that it is strongly associated with critical social media practices, such as checking original sources and comparing coronavirus-related information with expert or other credible sources before posting or sharing it. Consistent with Melki et al. (2021), this study further demonstrates that social media information efficacy is positively related to critical social media participation, which, in turn, is strongly related to COVID-19 health literacy. Regression analyses further reveal significant positive relationships between social media information efficacy and all four dimensions of COVID-19 health literacy: accessing and finding appropriate information; understanding medical instructions and health risks; appraising and evaluating coronavirus-related information and preventive measures; and applying such information to manage COVID-19-related situations. Past studies regarding social media efficacy suggest strategically utilizing interventions for tackling pandemic challenges and effectively changing people's perceptions and behaviors amid the COVID-19 health crisis (Zhou et al., 2022). Extending this literature, our findings not only clarify that social media information efficacy improves critical social media practices, but also sort out its positive relationship with COVID-19 health literacy as a whole and on its four dimensions respectively.

Conceptualizing social media disinformation efficacy as a crucial, emerging dimension of digital literacy, this study pioneers the investigation into how this efficacy shapes user behavior in health misinformation contexts. By comparison, the SEM results indicate that social media disinformation efficacy, which centers on individuals' perceived ability to avoid disinformation and independently address related problems, is not significantly related to critical social media behaviors. One possible explanation for this null association is the relatively narrow scope of the measure, which focuses primarily on coping with problems arising from disinformation rather than identifying, detecting, or debunking disinformation itself. Nonetheless, the regression results reveal a moderate positive relationship between social media disinformation efficacy and the understanding dimension of COVID-19 health literacy. That is, individuals who feel capable of preventing or independently addressing social media disinformation problems are more likely to understand medical professionals' instructions, public health authorities' recommendations, advice from close social ties, and media information, thereby enabling them to better comprehend COVID-19 risks and adopt appropriate measures to protect themselves from infection. It is therefore crucial to refine the measurement of this important and emerging dimension of social media literacy by incorporating individuals' abilities to verify the authenticity of health-related information and to identify and debunk health disinformation. This distinctive form of digital literacy is essential for developing effective strategies to mitigate the harmful consequences of a disinfodemic.

Moreover, this study identifies COVID-19 health literacy as a significant factor affecting adopting preventive measures, which is in line with past studies asserting that health literacy promotes preventive behaviors (Fukuda et al., 2021; Montagni et al., 2021; Patil et al., 2021). In other words, those with higher COVID-19 health literacy tend to take correct preventive actions to protect themselves from the adverse effects of the coronavirus. Hence, promoting COVID-19 health literacy is essential to educate and encourage people to search for reliable and high-quality health information, comprehend and appraise the contents, and apply their knowledge to make decisions to safeguard their health. With high COVID-19 literacy, people tend to take correct preventive measures to protect themselves from coronavirus harm.

Finally, another key takeaway from this study is that critical social media posting practices are significantly associated with COVID-19 health literacy and its four dimensions (accessing, understanding, appraising, and applying health information). This finding indicates that active social media participatory behaviors, such as verifying and comparing coronavirus-related content before posting or sharing it, are positively related to higher levels of COVID-19 health literacy and a greater likelihood of adopting preventive measures during the pandemic.

5.2. Theoretical Contributions and Practical Implications

Self-efficacy theory and literacy theories provide complementary foundations for explaining how individuals navigate health mis/disinformation in social media

environments. This study's central theoretical contribution is the "multidimensional understanding of digital literacy" that differentiates which forms of efficacy matter, through what practices, and for which dimensions of health literacy. First, it demonstrates that social media efficacy is not a unitary construct by distinguishing between social media information efficacy and social media disinformation efficacy. The findings suggest that these efficacy beliefs are not interchangeable. Social media information efficacy—confidence in locating, evaluating, and using credible information—was consistently related to critical social media practices and multiple dimensions of COVID-19 health literacy, whereas disinformation efficacy showed a much more limited relationship. This differentiation contributes theoretically by suggesting that social media efficacy is a multidimensional construct whose dimensions may operate through distinct informational and behavioral pathways.

Next, the comparatively limited role of social media disinformation efficacy points to the need for greater conceptual refinement of this emerging yet crucial construct in misinformation scholarship. This finding contributes to the emerging literature on misinformation efficacy by suggesting that its measurement should extend beyond coping with disinformation-related problems to incorporate individuals' perceived abilities to identify, verify, correct, and debunk health disinformation. Future conceptualizations may further distinguish among coping efficacy, detection efficacy, verification efficacy, and correction/debunking efficacy to better capture the multidimensional nature of individuals' perceived competence in responding to misinformation.

Third, the study helps bridge two bodies of literature that have often developed separately: social media literacy and health literacy. Much previous work has examined how people navigate online information or how they understand and use health information, but less attention has been paid to how competencies developed within social media information environments may be related to health literacy. Our findings suggest that the ability and confidence to evaluate information on social media are closely connected with individuals' capacities to access, understand, appraise, and apply health information during the COVID-19 public health crisis. This positions social media information efficacy as a potential upstream digital competency associated with health-information capabilities in specific contexts.

Finally, the findings identify critical social media practices as an important behavioral mechanism linking information efficacy with health literacy during COVID-19. Rather than conceptualizing efficacy solely as a psychological belief, this study shows that higher social media information efficacy is related to critical information practices which, in turn, are associated with higher health literacy and preventive behaviors in specific contexts. This contributes to efficacy theory by highlighting a possible efficacy, critical information practice, health literacy pathway, suggesting that general information efficacy is connected with contextual health literacy and preventive behaviors. Together, these findings advance a

multidimensional understanding of digital literacy and clarify how distinct efficacy beliefs and critical information practices are differentially related to specific health literacy in mis/disinformation-rich environments.

Importantly, the present study tests these relationships specifically within the COVID-19 information environment. Accordingly, the findings should not be interpreted as demonstrating that the same relationships necessarily operate across all forms of health misinformation or public health crises. However, the underlying theoretical distinctions between perceived social media efficacy, critical verification practices, and health-information competence are not inherently limited to COVID-19. Future research can examine whether this framework extends to other health misinformation contexts, such as emerging infectious diseases or other public health emergencies.

Practically, this study suggests that health communication and misinformation interventions should strengthen users' social media information efficacy, critical verification practices, and health literacy as an integrated set of competencies. The findings from the COVID-19 context indicate that disinformation interventions should not focus only on helping individuals avoid or cope with misleading information; more targeted training is needed to strengthen users' abilities to identify, verify, correct, and debunk health disinformation. Incorporating these competencies into media literacy and public health education may better prepare individuals to navigate future infodemics, evaluate health risks, and make more informed preventive health decisions during public health emergencies. Public health agencies, educators, and social media platforms can help users develop greater confidence and ability to locate credible information, check original sources, compare health claims with expert or authoritative sources, and critically evaluate content before posting or sharing it. These practices are particularly important in social media environments where accurate, misleading, and conflicting health information often coexist. To mitigate health disinfodemic, multi-stakeholders (e.g., the government, health professionals, media experts, social media operators, and civic groups) have to collaborate in developing digital literacy campaigns to reach various social groups on multiple platforms and design customized contents catering for them. Findings from the COVID-19 pandemic, one of the most severe crises in human history, offer valuable insights for developing effective digital literacy strategies to counter health disinformation and promote preventive behaviors during future public health emergencies.

5.3. Limitations

Several limitations should be acknowledged. First, because this study relies on cross-sectional data, causal relationships among the variables should be interpreted with caution. Future research is encouraged to employ longitudinal or experimental designs to clarify the complex interrelationships among different forms of digital literacy and their associations with health-related outcomes. Second, while this study offers an initial operationalization of social media disinfor-

mation efficacy, the adapted instrument remains constrained in scope. Although it provides a necessary foundation for measuring self-perceived coping capabilities, the scale primarily captures generalized coping rather than the full spectrum of counter-disinformation competencies. Subsequent scholarship should refine and validate this construct by incorporating specific performance-based dimensions, such as individual capabilities to identify algorithmic manipulation, differentiate verifiable facts from covert falsehoods, and perform direct digital debunking. Third, the measurement of critical social media posting practices was restricted to a two-item scale, limiting the content validity and structural breadth of the construct. Although these items effectively captured pre-sharing verification behaviors, they do not fully represent the multidimensional domain of responsible online engagement. Future research should construct and validate expanded scales that encompass broader practices, including source triangulation, contextual evaluation, and proactive corrective sharing. Fourth, although the analyses controlled for age, gender, educational attainment, income, and perceived exposure to misinformation, the study did not account for several other contextual factors that may shape individuals' information practices and health behaviors, such as institutional trust, political orientation, platform-specific patterns of social media use, and objectively assessed exposure to health misinformation. The omission of these factors may leave some relevant contextual variation unaccounted for. Future research should incorporate these variables to further examine the robustness and boundary conditions of the relationships identified in this study. Finally, the preventive-behavior measure exhibited relatively high scores and limited variability ($M = 4.36$, $SD = .56$), suggesting a potential ceiling effect. Future studies should employ behavioral measures with greater variability and sensitivity to better distinguish individual differences in preventive behaviors.

Apart from that, the study used quota sampling based on gender, age, and educational attainment, and the survey yielded a response rate of 11.64%. Moreover, the analytical sample was restricted to respondents who reported COVID-19-related social media posting experience because the critical-posting items were conditionally administered to these respondents. Thus, the findings are most directly generalizable to social media users with relevant posting experience rather than to all social media users in the Taiwan region. This study also relied on self-reported measures collected within a single survey, which are prone to social desirability bias. Future studies should incorporate performance-based assessments, behavioral measures, and multi-source or longitudinal data.

Author Contributions

Trisha T. C. Lin: Conceptualization, Methodology, Data curation, Funding acquisition, Investigation, Resources, Project administration, Writing—review and editing, Writing—original draft preparation, supervision, funding acquisition;

Jeffry Oktavianus: Conceptualization, Methodology, Formal analysis, Visualization, Writing—original draft, writing—review and editing.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Table A1. Standardized factor loadings, reliability, and convergent validity.

Item	Factor Loading	Cronbach's α/Pearson's *r*	AVE	CR
Social Media Disinformation Efficacy		.91	.729	.915
Item 1	.818			
Item 2	.853			
Item 3	.861			
Item 4	.882			
Social Media Information Efficacy		.92	.732	.916
Item 1	.831			
Item 2	.884			
Item 3	.848			
Item 4	.858			
Critical Social Media Posting		.82	.826	.904
Item 1	.953			
Item 2	.862			
COVID-19 Health Literacy		.96	.625	.972
Access		.91	.628	.910
Item 1	.806			
Item 2	.83			
Item 3	.735			
Item 4	.771			
Item 5	.842			
Item 6	.764			
Understanding		.93	.691	.931
Item 7	.837			
Item 8	.817			
Item 9	.841			
Item 10	.844			
Item 11	.862			
Item 12	.786			
Appraise		.85	.596	.854
Item 13	.712			
Item 14	.835			
Item 15	.83			
Item 16	.702			

Continued

Apply		.86	.564	.864
Item 17	.699			
Item 18	.853			
Item 19	.852			
Item 20	.616			
Item 21	.707			
COVID-19 Preventive Measures		.77	.457	.770
Item 1	.652			
Item 2	.726			
Item 3	.662			
Item 4	.661			

Note: AVE = average variance extracted. CR = composite reliability.

Table A2. Results of the Fornell-Larcker test.

	SMDE	SMIE	CSMP	CHL	CPM
SMDE	.85				
SMIE	.75	.86			
CSMP	.43	.50	.91		
CHL	.47	.53	.44	.79	
CPM	.27	.31	.28	.36	.68

Notes: SMDE = social media disinformation efficacy. SMIE = social media information efficacy. CSMP = critical social media posting. CHL = COVID-19 health literacy. CPM = COVID-19 preventive measures.

Table A3. Measurements and survey items.

Items
Social Media Information Efficacy
I know how to use credible social media information that I find to help me.
I have skills to evaluate the truthfulness of information that I find on social media.
I can tell the quality of social media information.
I feel confident in using verified social media information to make decisions.
Social Media Disinformation Efficacy
I can prevent myself from getting problems caused by social media disinformation.
I can easily handle problems caused by social media disinformation.
I am confident that I could efficiently deal with problems caused by social media disinformation.
I can usually handle whatever problems caused by social media disinformation on my way.

Continued

Critical Social Media Posting
I checked the original sources of the coronavirus news before posting.
I compared Coronavirus information to an expert or credible source before posting.
I published most news I received about coronavirus. [dropped]
COVID-19 Health Literacy
Accessing
Find information about the coronavirus on the Internet?
Find information on the Internet about protective behaviors that can help to prevent infection with the coronavirus?
Find information in newspapers, magazines and on TV about behaviors that can help to prevent infection with the coronavirus?
Find information on how to recognize if I have likely become infected with the coronavirus?
Find information on how to find professional help in case of coronavirus infection?
Find information on how I much I am at risk for being infected with the coronavirus?
Understanding
Understand your doctor's, pharmacist's or nurse's instructions on protective measures against coronavirus infection?
Understand recommendations of authorities regarding protective measures against coronavirus infection?
Understand advice from family members or friends regarding protective measures against coronavirus infection?
Understand information in the media on how to protect myself against coronavirus infection?
Understand risks of the coronavirus that I find on the Internet?
Understand risks of the coronavirus that I find in newspapers, magazines or on TV?
Appraising
Judge if information on the coronavirus and the coronavirus epidemic in the media is reliable?
Judge which behaviors are associated with a higher risk of coronavirus infection?
Judge what protective measures you can apply to prevent a coronavirus infection?
Judge how much I am at risk for a coronavirus infection?
Judge if I have been infected with coronavirus? [dropped]
Applying health-related information
Decide how you can protect yourself from coronavirus infection based on information in the media?
Follow instructions from your doctor or pharmacist regarding how to handle the coronavirus situation?

Continued

Use information the doctor gives you to decide how to handle an infection with the coronavirus?
Behave in a way to avoid infecting others?
Use media information to decide how to handle an infection with the coronavirus?
COVID-19 Preventive Measures
Avoid crowds
Wash hands with water and soap
Avoid shaking hands
Cover my cough
Stay at home [dropped]
Avoid touching face [dropped]