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Between likes and lies: how teenage girls navigate online health information

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Introduction: This study examined how high school teenage girls in the United States navigate and evaluate health information on social media, as well as the barriers they face in accessing and interpreting such content.

Methods: We conducted an online survey of high school teenage girls in the United States to understand their social media use and assessment of online health information. Our survey included both open-ended and closed-ended questions, generating qualitative and quantitative data on the research topics. A quota sampling approach was used to ensure the survey sample was representative of the population in terms of race, ethnicity, and geographic location.

Results: Our findings highlight three key challenges teenage girls face in navigating health information online: information overload, conflicting messages, and risks associated with misinformation. This research also shows that factors such as self-efficacy, self-esteem, and household socioeconomic status influence teenage girls' social media use and digital information competence, which in turn affect how they access online health misinformation.

Discussion: This study fills an important gap in research by providing empirical insights into how teenage girls evaluate beauty and health information on social media. It contributes to health communication studies by showing how digital health information environments both reinforce and complicate longstanding gendered dynamics related to health, idealized body standards, and equitable access to information. This research also offers practical implications for enhancing digital health literacy among teenage girls through targeted programs and informed guidance for educators, policymakers, and caregivers.

KEYWORDS

online health information, information assessment, teenage girls, digital health literacy, social media

Introduction

In recent years, social media platforms such as TikTok, Instagram, and YouTube have become go-to sources for teenage girls seeking beauty and health information and advice (Freeman et al., 2023; Lim et al., 2022). These platforms provide a wealth of content—from skincare routines and diet trends to fitness advice and cosmetic procedures. However, concerns have grown over this phenomenon, as many teenagers are susceptible to false or misleading

information that can negatively affect their health and self-esteem (Shanab, 2024). For example, TikTok trends such as “What I Eat in a Day”—where influencers showcase their daily food intake from morning to night, often accompanied by a signature “ab shot”—can foster negative body image among teenage girls by promoting unrealistic eating habits and idealized beauty standards (Smith, 2025). Similarly, the growing popularity of DIY beauty treatments on Instagram and YouTube has contributed to the spread of misinformation about skincare and cosmetic procedures (Harrison, 2024).

Given the considerable time teenage girls spend on social media (Faverio and Sidoti, 2024) and potential impact of these platforms on their perceptions of beauty and health, it is crucial that parents, educators, and health professionals to better understand how teenage girls engage with beauty and health information online including their ability to assess its credibility. Against this backdrop, this study conducted a survey of high school teenage girls in the United States to examine how they navigate health information on social media and evaluate its information quality. Specifically, the research investigates the barriers teenage girls face in accessing and interpreting health information on social media platforms. In addition, it analyzes the effects of teenage girls’ self-efficacy, self-esteem, and socioeconomic status on their social media use and digital skills, as well as how these variables influence their ability to assess health misinformation on social media. The findings of this study are based on both qualitative and quantitative data, gathered through a combination of open-ended and close-ended questions in the survey.

This study not only contributes to scholarly research but also offers practical implications for enhancing health literacy among teenage girls through digital literacy education. It addresses a significant gap in existing research on how teenage girls access and evaluate beauty and health information on social media platforms. By providing empirical data on teenage girls’ online health information assessments, the research offers insights for policymakers, educators, and researchers on developing programs that strengthen teenage girls’ ability to critically evaluate online health information. Additionally, the study’s findings can help parents, teachers, and community leaders gain a deeper understanding of the challenges teenage girls encounter when navigating health content on social media, promoting more informed discussions and proactive guidance on responsible digital information consumption.

Literature review

Feminist dimensions of girls’ and women’s health

The convergence of feminist theory and women’s health has attracted considerable scholarly interest across a range of academic disciplines, including but not limited to gender studies, public health, sociology, political science, and media studies (Dixon, 2014; Lovell, 2016). Within these fields, key areas of inquiry often revolve around body image, reproductive justice, mental health, technological interventions in reproduction, and equitable access to healthcare services (Lovell, 2016; Retallack et al., 2016). The interdisciplinary nature of this scholarship underscores the intricate and often interdependent relationship among sociocultural, political, and

health-related dimensions in shaping understandings of women’s health.

During the late 1960s to mid-1970s, teenage feminism reflected how girls embraced feminist ideology as a means to resist traditional gender role expectations and assert autonomy over their bodies (Lovell, 2016). Within the realm of girls’ and women’s health, feminist approaches can be seen as efforts to confront the “historical process of systematic exclusion” that has marginalized women’s experiences and perspectives in the production of knowledge (Hudson, 2022, p. 25). Throughout the history of feminism, activists have advocated for including and elevating women’s voices often left out in various sectors of society including political, economic, social, and medical areas (Cobble et al., 2015).

The rise of social media has enabled women from various backgrounds to publicly articulate their lived experiences, often utilizing hashtags to spotlight pressing issues and engage wider audiences (Dixon, 2014). This aligns with the fourth wave of feminism, which emerged in tandem with the rise of the Internet and social media in the early 21st century, leveraging digital platforms to advocate for the rights and well-being of women and other marginalized communities (Cobble et al., 2015). Rooted in the intersectional feminist frameworks of the third wave, fourth-wave feminism underscores the significance of acknowledging diverse identities and lived experiences within contemporary feminist discourse.

For teenage girls, social media has emerged as a key space to access information related to beauty and weight loss, as well as to express their concerns about body image (Oden and Porter, 2023; Retallack et al., 2016). This reflects the role of social media in providing girls and women with platforms to express their complex and evolving relationships with their bodies (Hockin-Boyers et al., 2020; Reade, 2020; Toffoletti and Thorpe, 2020). Social media campaigns such as “Fuck Your Body Image” have become valuable tools for navigating and participating in interconnected online dialogues about gender-related topics (Retallack et al., 2016). For example, female weightlifters recovering from eating disorders used Instagram to curate body-positive content, adopt coping strategies for navigating harmful media, and engage in self-care practices within a digital context (Hockin-Boyers et al., 2020). While existing literature increasingly explores the intersections of social media and women’s health, research specifically focused on how teenage girls engage with social media for health-related purposes remains limited.

Teenage girls’ social media use for health information

Social media has emerged as a leading platform for digital media consumption globally, with teenagers increasingly depending on it as a primary source of news and information (Faverio and Sidoti, 2024). Recent surveys indicate that 97% of teenagers in the United States actively use social media platforms such as Instagram and TikTok (Freeman et al., 2023). Social media use can provide many opportunities for teenagers, from fostering connections to increasing self-realization and greater satisfaction in life. Previous research has shown that adolescents’ levels of social self-efficacy and collective self-esteem significantly influence their social media use, with those

exhibiting higher levels of self-efficacy and self-esteem being more likely to actively engage in social media activities (Seo et al., 2014). Social self-efficacy pertains to an individual's perceived ability to form new interpersonal connections (Zullig et al., 2011), while collective self-esteem reflects the extent to which a person feels connected to and values their membership in a social group (Barker, 2009). According to the latest Pew Research Center report on teenagers' social media use (Faverio and Sidoti, 2024), nearly half of surveyed teenagers reported being online constantly, and many said they feel closer to their friends through social media. The more actively a teenager engages with social media by liking, sharing, and commenting on posts, the more connected they feel to their online network. However, social media's ability to amplify the feeling of being judged and watched by peers online can play a role in shaping teenagers' perceptions of popularity and social status (Ehrenreich, 2022).

Social media has become a prominent and easily accessible platform for health-related information, with an increasing number of adolescents and young adults turning to these platforms to seek resources and engage with content on various health topics (Pfender and Bleakley, 2024). Teenagers represent a unique demographic with distinct behaviors and needs regarding social media and health information. Teenagers frequently share and exchange health-related information within their networks, engaging in discussions on topics such as emotional well-being, overall health, and acute medical conditions (Hausmann et al., 2017). This dynamic and interactive use of social media underscores its growing importance in shaping how young people engage with and understand health-related matters online.

From a communication perspective, teenagers' use of social media for health communication often involves active engagement with content, such as contributing to discussions, raising awareness, and advocating for specific health causes (Zhang et al., 2024). Despite these benefits, teenagers face unique risks when using social media for health information. In particular, the prevalence of misinformation remains a significant concern, as inaccurate or unverified content can influence their health behaviors negatively (Suarez-Lledo and Alvarez-Galvez, 2021). Like adults, teenagers often face challenges in distinguishing credible health information from unreliable sources, leaving them especially vulnerable to harmful outcomes. While social media can serve as a powerful tool for advocacy and awareness among adolescents (Zhang et al., 2024), issues such as privacy risks and an over-reliance on influencers complicate its effectiveness as a reliable health resource. These benefits and limitations underscore the multifaceted role of social media in adolescent health communication and highlight the critical need to strengthen health literacy within digital literacy education to better support and empower teens.

Online health information verification among teenage girls

Teenagers' heavy use of social media exposes them to both credible information and widespread misinformation, raising serious concerns about their vulnerability to misleading or harmful content (Anderson et al., 2023; Oden and Porter, 2023). Research suggests that teenagers, especially those who frequently use social media, often face difficulties in critically assessing information and its sources—challenges that are heightened when encountering complex or controversial content (Johnston, 2020).

Although teenagers often express confidence in navigating digital environments, their ability to critically evaluate information varies considerably—ranging from healthy skepticism to unquestioning trust—shaped by factors such as their educational background, understanding of algorithms, and familiarity with digital platforms (Haider and Sundin, 2020). Previous studies indicate that many teenagers tend to overestimate their ability to identify and manage misinformation, exhibiting a high degree of self-confidence in their digital competencies (Herrero-Diz et al., 2021; Zozaya-Durazo et al., 2023). This overconfidence is frequently coupled with a third-person perception bias, wherein teenagers view others as more susceptible to being deceived by fake news or misinformation (Corbu et al., 2021). Teenagers often underestimate the importance of information verification strategies, such as assessing authorship or evaluating the credibility of information sources (Papapicco et al., 2022). Instead, they tend to rely on platform features, emotional cues, and guidance from adults or traditional media to assess information accuracy (Zozaya-Durazo et al., 2023). In addition, their engagement with and dissemination of misleading content is frequently motivated by a desire to participate in viral trends, feel socially connected, express personal interests, or react emotionally to online material (Herrero-Diz et al., 2021; Notley and Dezuanni, 2018). This interaction with misinformation not only underscores teenagers' vulnerability to deceptive content but also highlights their role in amplifying its spread and societal impact (Herrero-Diz et al., 2021).

Health literacy—encompassing the ability to locate, assess, and understand health information and services to make well-informed health choices—has emerged as a significant concern regarding teenagers' use of social media as an information source (Merga, 2023). Teenagers often place greater trust in health information shared by peers, relatable influencers, and content that appears visually appealing and professionally produced (Freeman et al., 2023). However, this reliance on social media as a source of health advice also increases their exposure to misinformation, misleading claims, and heavily edited images, which can distort their understanding of body image and health behaviors (Dane and Bhatia, 2023; Merga, 2023; Oddone and Merga, 2024). For example, the rise of DIY beauty treatments on Instagram and YouTube has led to misinformation about skincare and cosmetic practices (Harrison, 2024). Some influencers have recommended using lemon juice or baking soda as a treatment for acne, despite dermatologists warning that such practices can damage the skin barrier and cause irritation (Rud, 2024). Motivated reasoning significantly shapes the spread and acceptance of misinformation by affecting how individuals interpret information through the lens of their preexisting beliefs and emotional biases (Carpenter, 2019). In particular, adherence to misinformation is frequently motivated by a desire to conform to the norms and values of an in-group (Savolainen, 2022). This behavior is further intensified within online echo chambers, where interactions with like-minded individuals amplify and legitimize misinformation, posing significant obstacles to effective public health communication (Bailey et al., 2020).

This vulnerability is particularly concerning given the documented links between social media use and negative health outcomes: by age 20, approximately 13% of young adults are diagnosed with eating disorders and between 15 and 47% engage in disordered eating behaviors (Dane and Bhatia, 2023). To navigate this complex digital landscape, teenagers require strong health literacy in the digital media

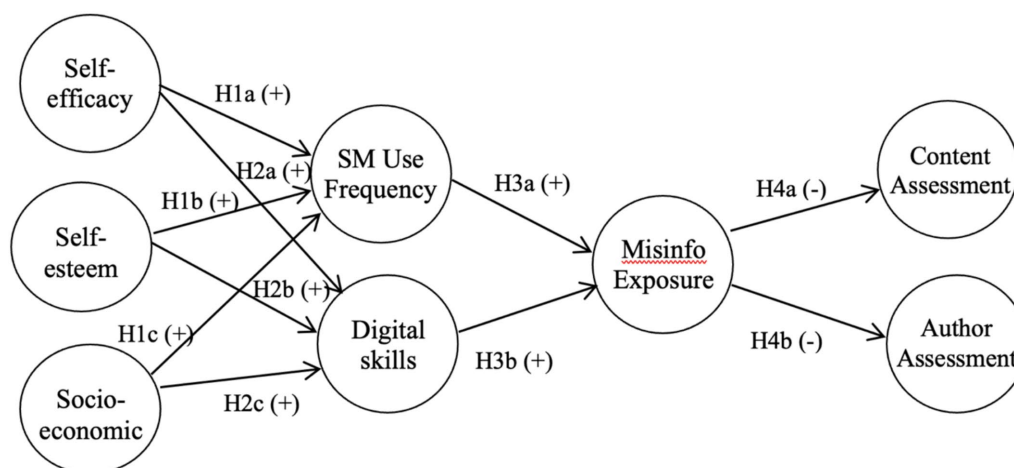


FIGURE 1
Hypothesized model of the relationships between the variables analyzed.

age—the ability to locate, comprehend, evaluate, and apply online health information to address problems and make informed decisions (Merga, 2023). It is equally important to empower teenage girls with the skills to critically access, evaluate, and apply health information to make informed and responsible health decisions. In the absence of these competencies, exposure to health misinformation on social media can result in serious and lasting consequences.

Research question and hypotheses

Drawing on prior research, this study examines the following research question and hypotheses. Figure 1 illustrates the hypothesized relationships among the variables (H1–H4).

RQ1: What are the challenges high school teenage girls perceive when navigating health information on social media?

H1: Teenage girls' social self-efficacy (H1a), collective self-esteem (H1b), and household socioeconomic status (H1c) would be positively associated with their social media use.

H2: Teenage girls' social self-efficacy (H1a), collective self-esteem (H1b), and household socioeconomic status (H1c) would be positively associated with their digital information competence.

H3: Teenage girls' social media use (H3a) and digital information competence (H3b) would be positively associated with their perceived exposure to misinformation on social media, even when controlling for social self-efficacy, collective self-esteem, and household socioeconomic status.

H4: Teenage girls' perceived exposure to misinformation on social media would be negatively associated with their evaluations of both content credibility (H4a) and author credibility (H4b) of a misleading social media post on health, even when controlling for social self-efficacy, collective self-esteem, household

socioeconomic status, social media use, and digital information competence.

Methods

We conducted an online survey of high school teenage girls in the United States to understand their social media use and assessment of online health information. Our survey included both open-ended and closed-ended questions, generating qualitative and quantitative data on the research topics. To recruit participants for our survey, the research team worked with Qualtrics, a survey sampling and administration company. Prior research on the validity of Qualtrics research panels has demonstrated that Qualtrics samples are comparable to community samples in terms of reliability and representativeness (Belliveau et al., 2022; Miller et al., 2020). The research procedures outlined below have received approval from the Institutional Review Board at the first author's university.

Sampling

A quota sampling approach was used to ensure the survey sample was representative of the population in terms of race, ethnicity, and geographic location. Quota sampling is a non-probability sampling method designed to create a sample that reflects the expected distribution of characteristics within the target population (Babbie, 2020). Using quota sampling, researchers establish predefined quotas based on key demographic characteristics such as age, gender, race, income level, or geographic location. In our study, we established quotas for race, ethnicity, and geographic location among U.S. high school girls aged 18–19 to align with national demographic data for this age group (United States Census Bureau, 2024). The U.S. high school system generally encompasses four years (grades 9–12), typically serving students aged 14 to 19. Accordingly, this study focuses on upper-level high school students.

Survey questionnaire and measurement items

Our survey questionnaire was designed based on insights gained from a review of previous studies outlined in the Literature Review section. After drafting our initial survey questions, we conducted a pretest of the survey questionnaire with 25 high school teenage girls in the United States. Based on feedback from the pretest, we developed the final version of the survey questionnaire, which was created using the Qualtrics survey platform. The final survey questionnaire included 25 closed-ended questions and two open-ended questions. Details on specific question items used to measure key concepts and topics in this research are provided below.

Measurement items

The reliability of the measurement items was evaluated by examining Cronbach's alpha and composite reliability (Hair et al., 1998; Pett et al., 2003). Specifically, confirmatory factor analysis was conducted to assess both convergent and discriminant validity.

Social self-efficacy

To assess participants' social self-efficacy, we used seven items derived from previous research on this concept among teenagers (Seo et al., 2014; Zullig et al., 2011). The items were: (1) How well can you express your opinions when other classmates disagree with you?; (2) How well can you become friends with other people of your age?; (3) How well can you have a chat with an unfamiliar person?; (4) How well can you work in harmony with your classmates?; (5) How well can you tell other people your age that they are doing something that you do not like?; (6) How well can you tell a funny story to a group of your age?; and (7) How well do you succeed in staying friends with people your age? Each item was measured on a scale of 1 (not at all) to 5 (very well). Cronbach's alpha test indicated that an index based on these multiple items was reliable ($\alpha = 0.84$) with composite reliability of 0.85.

Collective self-esteem

The survey questionnaire included six items related to collective self-esteem, which were adapted from previous research on this concept among teenagers (Barker, 2009; Seo et al., 2014). The items were: (1) I am a worthy member of the groups or organizations I belong to; (2) Overall, my groups or organizations are considered good by others; (3) In general, I am glad to be a member of the groups or organizations I belong to; (4) The groups or organizations I belong to are an important reflection of who I am; (5) I am a cooperative participant in the groups or organizations I belong to; and (6) In general, others respect the groups or organizations that I am a member of. Each item was measured on a scale of 1 (Strongly disagree) to 5 (Strongly agree). The index variable was reliable according to Cronbach's alpha test ($\alpha = 0.80$) and composite reliability (0.80).

Social media use

Our research assessed participants' social media use by asking about the amount of time spent on different social media platforms during an average weekday and an average weekend day. The social

media platforms included in the questions were Instagram, YouTube, TikTok, Facebook, and X. The survey also asked participants to express their level of agreement with various reasons for using social media: (1) to pass time; (2) to learn things outside school; (3) to swap news with friends; (4) to communicate with friends; (5) to help myself feel better when I am down; (6) to get information about health and beauty; and (7) I feel treated better online than offline. The index variable was reliable according to Cronbach's alpha test ($\alpha = 0.88$) and composite reliability (0.87).

Digital information competence

To measure participants' digital information competence, seven measurement items were used: (1) It is easy for me to find information online; (2) I know how to use a wide range of strategies when searching for information online; (3) I find it easy to decide what the best keywords are to use for online searches; (4) I am confident in selecting search results; (5) I find it easy to verify information I have found online; (6) I feel confident in my evaluation of whether a website can be trusted; and (7) I generally compare different websites to decide if information is true. The items were informed from previous research on digital learning (Van Deursen et al., 2014). Each item was measured on a scale of 1 (Strongly disagree) to 5 (Strongly agree). Cronbach's alpha test indicated that an index based on these multiple items was reliable ($\alpha = 0.88$) with composite reliability of 0.88. It should be noted that these items may capture participants' self-perceived confidence rather than their actual evaluative abilities.

Misinformation exposure

Participants were asked to indicate how frequently they think they have encountered misinformation about health on each of the following social media sites: Instagram, YouTube, TikTok, Facebook, X, and other social media sites. Each item was measured on a scale of 1 (not at all) to 5 (almost always). The index variable was reliable according to Cronbach's alpha test ($\alpha = 0.82$) and composite reliability (0.80).

Post content assessment and post author assessment

Participants were shown an Instagram post created specifically for this study, containing misleading information about using intermittent fasting to stay lean. They were then asked to evaluate both the content and the author. Participants' assessments of the post content were measured using the following five items: (1) The post is useful in helping me understand the topic; (2) The information provided in the post is accurate; (3) The information provided in the post is believable; (4) The information provided in the post is persuasive; and (5) The information provided in the post is false or misleading. Another five items were used to measure participants' evaluations of the post author: (1) The author of the post is fair; (2) The author of the post is biased; (3) The author of the post can be trusted; (4) The author of the post is opinionated; and (5) The author of the post tells the whole story. Each item was measured on a scale of 1 (Strongly disagree) to 5 (Strongly agree). Cronbach's alpha tests indicated good reliability for the index variables for post content assessment ($\alpha = 0.81$; composite reliability: 0.81) and post author assessment ($\alpha = 0.80$; composite reliability: 0.82).

Survey data analysis: integrating qualitative and quantitative approaches

To address RQ1, we conducted a thematic analysis of participants' responses to open-ended questions about the challenges of verifying health information online. We employed a grounded theory approach (Strauss and Corbin, 1994), which involves inductively identifying categories related to a particular phenomenon. This approach is well-suited to the present study, given the limited empirical research on this specific topic. Using an emergent coding structure, the coders initially identified a set of frequently occurring categories, which were then applied to the qualitative dataset. Three communication researchers with prior experience in qualitative coding analyzed the participants' comments. Before coding, the researchers completed a series of training sessions to familiarize themselves with the research topic.

We utilized path analysis by conducting a series of multiple regression analyses to examine the theoretical model illustrated in Figure 1 and test the hypothesized relationships among the variables (H1-H4). A hierarchical approach was applied in the regression analyses, where self-efficacy, self-esteem, and socioeconomic status variables were entered first in the regression equations. Next, social media use and digital information competence variables were included, followed by misinformation exposure, and finally, post content assessment and post author assessment variables. Tolerance and Variance Inflation Factor (VIP) statistics were computed, revealing no significant multicollinearity issues.

Results

A total of 534 high school teenage girls in the United States completed the survey. All participants self-identified as female and as high school students. In terms of age, 73.2% of the participants were 18 years old, and 26.8% were 19 years old. For race/ethnicity, 51.3% identified as White or Caucasian, 20% Hispanic or Latina, 15.5% Black or African-American, 5.2% other, 4.9% Asian, and 0.9% Native Hawaiian or other Pacific Islander. In response to a question about their household's socioeconomic status, 49.3% described themselves as middle class, 36.1% working class, 13.3% upper middle class, and 1.3% upper class. The demographic characteristics of the sample closely reflect national demographic data of this age group (United States Census Bureau, 2024).

When asked where they obtain health-related information, Google or other search engines ($M = 3.58$, $SD = 1.12$) were the most widely used sources, followed by family ($M = 3.54$, $SD = 1.24$), friends ($M = 3.20$, $SD = 1.25$), social media ($M = 3.15$, $SD = 1.29$), school ($M = 2.85$, $SD = 1.33$), news media sites ($M = 2.46$, $SD = 1.23$), church or community centers ($M = 2.23$, $SD = 1.37$), and generative AI such as ChatGPT ($M = 2.21$, $SD = 1.32$). Regarding specific social media sites, TikTok ($M = 3.05$, $SD = 1.46$) was the most popular source of health information, followed by YouTube ($M = 2.58$, $SD = 1.32$), Instagram ($M = 2.36$, $SD = 1.30$), Facebook ($M = 2.00$, $SD = 1.28$), and X ($M = 1.67$, $SD = 1.12$).

RQ1: Challenges in online health information verification

Our first research question explored the challenges teenage girls perceive when navigating health information on social media. Our

thematic analysis of study participants' responses to the topic identified three themes: (1) information overload, (2) conflicting messages, and (3) risks associated with misinformation.

Participants frequently expressed concerns about the difficulty of evaluating the accuracy and trustworthiness of health information on social media, especially given the overwhelming volume of content available. Many noted the challenge of determining credibility, especially when content lacks citations or verifiable sources. For example, one participant said, "It's difficult to find which information is true or not. There's so much information out there, but almost anyone can access it and edit it. It makes it difficult to tell if it's true." Another participant noted, "There are many misleading or unrelated headlines in comparison to the actual information on these social media platforms. Many are accurate but many are also misleading or false so it is challenging to always know what to trust." Dozens of participants noted that the rise of generative AI has contributed to an even greater volume of information, making it increasingly overwhelming to navigate and evaluate. For instance, one participant commented that it was "too much to sort through," adding, "I run into AI-generated items that are a curation dump rather than actual information with research to back it firsthand." This theme highlights a broader issue in digital literacy, where users are expected to navigate large volumes of information without sufficient tools or background knowledge to assess its reliability.

Another significant challenge identified was the inconsistency of health information across various sources, with one participant describing the experience as feeling "lost in conflicting information." Participants observed that contradictory messages frequently emerge, resulting in confusion and frustration. For example, one participant mentioned that "different sources saying different things that do not line up" made it difficult to assess the quality of information. Similarly, another participant remarked, "Even if you cross-reference to credited sites, those sites can be outdated or incorrect," highlighting the limitations of relying solely on source credibility for verification. One participant described the challenge of "having to search around and sort out all the differing information to find out which is correct," especially when some social media authors go to "extreme lengths" to make their content appear believable. This theme illustrates the complexity of synthesizing conflicting information and points to a broader issue within the digital information environment—the coexistence of both credible and non-credible content that often share similar visual presentation and rhetorical strategies.

The third theme centered on participants' concerns about the potential real-world harm caused by online health misinformation. For example, one participant cited an example of social media content on fasting, noting, "Many people could say that fasting is a great way to lose weight, but no one can be sure if it's actually healthy unless they test it. But by that time, it could be too late and someone already ended up hurting themselves by trying the fasting method, all because they could not find the right information." Another participant noted, "People will obviously fake things. For example, someone might claim there's an outbreak of a disease, and you want to believe it because of the world we live in—especially after COVID." The participant added, "But we cannot always trust it; sometimes it's just meant to instill fear in those who read it. You have to take things with a grain of salt." Several participants also raised concerns about misleading or fake images of health symptoms, noting that such content can cause real harm. One participant explained, "When looking up an image of your condition, it always leads to cancer

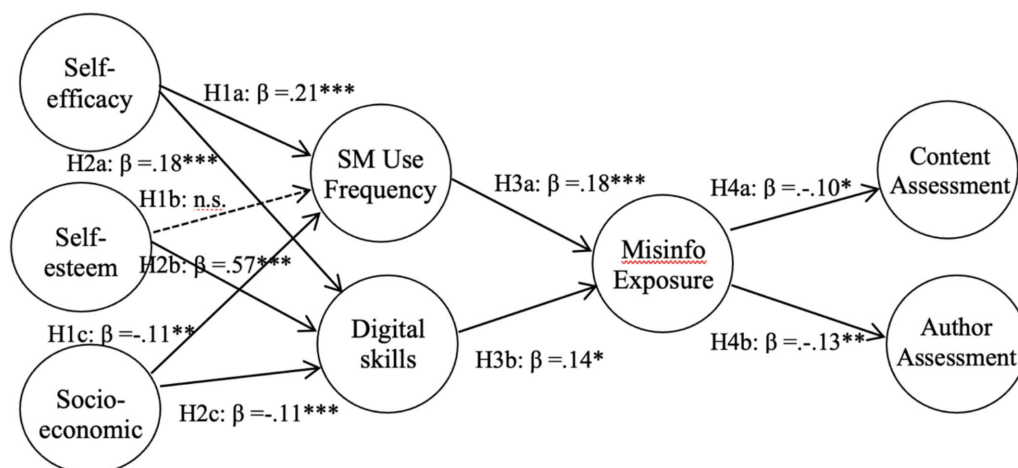


FIGURE 2
Path analysis results. * $p < .05$; ** $p < .01$; *** $p < .001$.

when it could really just be a pimple or something. It over-exaggerates things.” This theme highlights the difficulty of navigating misinformation in digital environments, where false claims are often framed convincingly and disseminated broadly.

H1: Self-efficacy, self-esteem, and socioeconomic status on social media use

Figure 2 presents a visual representation of the hypothesis testing results. The first hypothesis in this study posited that teenage girls’ social self-efficacy (H1a), collective self-esteem (H1b), and household socioeconomic status (H1c) would be positively associated with their social media use. When it comes to the daily average time spent on social media, email, and text messaging (rated on a scale from 1: Not at all to 5: Five hours or more), TikTok ($M = 3.59$, $SD = 1.41$) was the most extensively used platform, followed by YouTube ($M = 3.14$, $SD = 1.39$), Instagram ($M = 3.03$, $SD = 1.28$), text messaging ($M = 2.96$, $SD = 1.18$), email ($M = 2.07$, $SD = 1.01$), and Facebook ($M = 2.03$, $SD = 1.22$). Regarding reasons for using social media (rated on a scale from 1: Not at all important to 5: Very important), to communicate with friends ($M = 3.77$, $SD = 1.26$) was reported the most important, followed by to pass time ($M = 3.60$, $SD = 1.12$), to help myself feel better when I am down ($M = 3.32$, $SD = 1.35$), to get information about health and beauty ($M = 3.30$, $SD = 1.28$), to swap news with friends ($M = 3.20$, $SD = 1.29$), to learn things outside school ($M = 3.09$, $SD = 1.21$), and I feel treated better online than offline ($M = 2.63$, $SD = 1.39$).

Our survey data indicated statistically significant associations of teenage girls’ social self-efficacy and household socioeconomic status with social media use ($\Delta R^2 = 0.04$, $F = 7.99$, $p < 0.001$). Specifically, social self-efficacy ($\beta = 0.21$, $t = 3.92$, $p < 0.001$) was positively associated the level of social media use, whereas household socioeconomic status ($\beta = -0.11$, $t = -2.64$, $p < 0.01$) had a negative relationship with the social media use level. Therefore, H1a was supported. H1b was not supported, as there was no statically significant relationship between collective self-esteem ($\beta = -0.06$, $t = -1.28$, $p = 0.19$) and social media use. H1c was not supported, as the relationship was negative rather than positive.

H2: Self-efficacy, self-esteem, and socioeconomic status on digital competence

The second hypothesis suggested that teenage girls’ social self-efficacy (H2a), collective self-esteem (H2b), and household socioeconomic status (H2c) would be positively associated with their digital information competence. Participants showed a relatively high level of competence in accessing, using, and evaluating online information. Specifically, when asked to rate their level of agreement with each of the seven statements, the mean score was above 3 on all items (1: Strongly disagree; 5: Strongly agree): It is easy for me to find information online ($M = 3.73$, $SD = 1.15$); I generally compare different websites to decide if information is true ($M = 3.57$, $SD = 1.22$); I know how to use a wide range of strategies when searching for information online ($M = 3.56$, $SD = 1.21$); I am confident in selecting search results ($M = 3.54$, $SD = 1.16$); I find it easy to decide what the best keywords are to use for online searches ($M = 3.47$, $SD = 1.19$); I feel confident in my evaluation of whether a website can be trusted ($M = 3.42$, $SD = 1.12$); and I find it easy to verify information I have found online ($M = 3.39$, $SD = 1.12$).

Our survey data revealed statistically significant associations of teenage girls’ social self-efficacy and household socioeconomic status with digital information competence ($\Delta R^2 = 0.48$, $F = 166.60$, $p < 0.001$). Specifically, social self-efficacy ($\beta = 0.18$, $t = 4.56$, $p < 0.001$) and collective self-esteem ($\beta = 0.57$, $t = 14.72$, $p < 0.001$) were positively associated the level of digital information competence, whereas household socioeconomic status ($\beta = -0.11$, $t = -3.44$, $p < 0.001$) had a negative relationship with it. Therefore, H2a and H2b were supported, while H2c was not supported.

H3: Social media use and digital competence on misinformation perception

The third hypothesis posited that teenage girls’ social media use (H3a) and digital information competence (H3b) would be positively associated with their perceived exposure to misinformation on

social media, even when controlling for social self-efficacy, collective self-esteem, and household socioeconomic status. In response to a question about how often they encountered misinformation on social media, survey participants reported relatively frequent exposure ($M = 3.46$, $SD = 1.12$). Specifically, participants reported the most frequent exposure to misinformation on TikTok ($M = 3.43$, $SD = 1.19$), followed by Instagram ($M = 3.22$, $SD = 1.18$), YouTube ($M = 2.99$, $SD = 1.19$), Facebook ($M = 2.74$, $SD = 1.41$), and X ($M = 2.54$, $SD = 1.50$). Their reported exposure to misinformation on other online platforms was follows: search engines like Google ($M = 2.87$, $SD = 1.18$), generative AI sites ($M = 2.77$, $SD = 1.39$), and news media sites ($M = 2.68$, $SD = 1.26$). According to our survey data, social media use and digital information competence had significant effects on perceived exposure to online health misinformation ($\Delta R^2 = 0.04$, $F = 12.37$, $p < 0.001$). Both social media use ($\beta = 0.18$, $t = 4.24$, $p < 0.001$) and digital information competence ($\beta = 0.14$, $t = 2.47$, $p < 0.01$) were positively associated with perceived misinformation exposure. Therefore, H3a and H3b were supported.

H4: Perceived misinformation exposure on content assessment and author assessment

The fourth hypothesis posited that teenage girls' perceived exposure to health misinformation on social media would be negatively associated with their evaluations of both content credibility (H4a) and author credibility (H4b) of a misleading social media post on health, even when controlling for social self-efficacy, collective self-esteem, household socioeconomic status, social media use, and digital information competence. Our survey data analysis found statistically significant association of perceived exposure to online misinformation with social media content credibility assessment ($\Delta R^2 = 0.01$, $F = 5.03$, $p < 0.05$) and social media author credibility assessment ($\Delta R^2 = 0.02$, $F = 8.52$, $p < 0.01$). Specifically, perceived exposure to misinformation on social media was negatively associated with both social media content credibility rating ($\beta = -0.10$, $t = -2.24$, $p < 0.05$) and social media author credibility rating ($\beta = -0.13$, $t = -2.92$, $p < 0.01$). That is, teenage girls with higher reported exposure to health misinformation on social media were more likely to give lower credibility ratings to the content and author of a misleading health post. Therefore, H4a and H4b were supported.

Discussion

This study provides important insights into the complex dynamics between high school teenage girls and their engagement with health-related content on social media. The findings contribute to a growing body of literature that highlights the opportunities and challenges associated with digital media use among teenagers, particularly as it pertains to health information seeking, critical evaluation, and misinformation exposure. This study also contributes to feminist and gender studies by showing how digital health information environments both reinforce and complicate longstanding gendered dynamics related to health, idealized body standards, and equitable access to information.

Scholarly and practical implications

Our qualitative analysis findings reveal three key challenges teenage girls face in navigating health information online: information overload, conflicting messages, and risks associated with misinformation. These challenges reflect broader concerns within the field of health literacy and highlight specific patterns through which girls and women are compelled to navigate health discourses shaped by societal pressures including unrealistic beauty standards (Seo et al., 2025). Many participants expressed a sense of being overwhelmed by the sheer volume of content available online and found it difficult to discern reliable sources. The emergence of generative AI technologies further complicates the landscape by introducing more content—some of which may appear authoritative but lack proper sourcing. These findings echo prior studies on adolescents' difficulties in evaluating online information, underscoring the urgent need for digital literacy education tailored to their specific experiences and media environments (Freeman et al., 2023).

In terms of conflicting health information, participants reported confusion and frustration in reconciling contradictory advice across sources. Many participants referenced weight loss and skincare examples when discussing this concern. This aligns with prior research and recent reports suggesting that teenagers often struggle to synthesize diverse health narratives, particularly when different platforms present similar messages using varied rhetorical and visual strategies (Dane and Bhatia, 2023; Harrison, 2024; Shanab, 2024). In particular, the pervasive exposure to conflicting advice and misinformation—especially concerning body image and weight loss—illustrates the intersection of body politics and digital precarity, wherein girls are often required to make high-stakes health decisions without adequate tools for verification or resistance. This confusion can discourage individuals from seeking further information or lead them to rely on less rigorous heuristics (e.g., familiarity, popularity, or visual cues) when making decisions (Yin et al., 2018). The lack of clarity and alignment between sources also reflects the fragmentation of online health discourse and may contribute to the spread of misinformation by creating doubt about what is factually correct.

The concern about real-world harm highlights a particularly troubling aspect of misinformation: not only can it mislead, but it can also have serious implications for health behavior, such as promoting unsafe weight loss strategies or causing undue fear related to illness. This finding supports previous studies emphasizing cognitive and emotional burdens users face when reconciling conflicting online health content, reinforcing the importance of clear, consistent messaging from health authorities (Shariff, 2020). Even users who are motivated to verify information may lack the necessary tools or literacy skills. The difficulty in identifying trustworthy content highlights the urgent need for both educational initiatives and platform-level interventions to reduce misinformation exposure and promote informed health decision-making.

Our quantitative findings show that social self-efficacy was positively associated with social media use and digital information competence, suggesting that teenage girls who feel more confident in their ability to form social connections tend to engage more with social media platforms. Conversely, socioeconomic status was

negatively associated with social media use, implying that those from lower-income backgrounds may rely more heavily on these platforms for social interaction and information access. From a feminist and social justice perspective, this finding highlights ongoing concerns in terms of differential exposure to harm online. Although teenage girls from lower-income households report higher digital information competence, their heavy reliance on social media may increase their vulnerability to peer- or influencer-generated content, especially in the absence of comprehensive formal digital health literacy education.

Although collective self-esteem was not significantly associated with social media use, it demonstrated a significant relationship with digital information competence. This suggests that a sense of group belonging may be more influential in cultivating digital literacy than in driving general social media engagement. In contrast, the significant association of social self-efficacy with both social media use and digital information competence implies that individual-level confidence is more closely linked to these online behaviors than collective identity among teenage girls. These findings raise compelling questions for feminist scholars about how adolescent girls experience solidarity and construct identity in digital spaces (Cobble et al., 2015; Dixon, 2014).

Our analysis further revealed that both social media use and digital information competence were positively associated with perceived exposure to misinformation. This finding indicates that higher levels of engagement and competence are linked to greater recognition of misinformation, rather than reduced exposure to it. One possible explanation is that teenagers with stronger digital skills may be better able to identify misleading content when they encounter it, reflecting heightened awareness of the online information environment. This pattern aligns with previous research showing that increased digital literacy can enhance individuals' ability to detect misleading content, even if it does not reduce their overall exposure (Seo et al., 2021). However, since this study did not directly measure participants' actual exposure to misinformation, the finding should be interpreted with caution.

Together, these findings illustrate the multifaceted nature of teenage girls' digital health experiences. Social media platforms serve as vital sources of information and connection but also expose users to a range of cognitive, emotional, and behavioral challenges. The results underscore the importance of equipping teenage girls with robust health literacy skills, fostering critical thinking, and promoting platform accountability to mitigate the harms of misinformation and improve health outcomes. Specifically, the findings offer valuable guidance for educators in designing targeted digital literacy programs that not only equip teenagers with the skills to critically evaluate online health information but also integrate these skills into existing curricula. For example, schools could incorporate interactive modules that teach students how to assess source credibility, identify misinformation tactics, and practice fact-checking in real time. Embedding these lessons into health or digital literacy courses can make critical evaluation a routine part of students' digital engagement.

The findings also provide a foundation for policymakers and technology companies to develop stronger regulations and platform guidelines aimed at curbing the spread of health misinformation. This may include implementing clearer labeling of credible health sources,

increasing the visibility of fact-checked content, and enforcing stricter penalties for repeat misinformation offenders. Policymakers could also collaborate with public health agencies and youth organizations to ensure that platform policies reflect the needs and vulnerabilities of teenage users.

Additionally, the results can help parents, guardians, and community leaders better understand the challenges teenage girls face in navigating online health content. This understanding can inform practical actions, such as initiating regular, open conversations about social media use, co-engaging with online health resources to model critical evaluation, and creating supportive environments where teenagers feel comfortable discussing the health information they encounter. Community organizations might also host workshops or peer-led discussions that build collective awareness and resilience against misinformation.

Limitations and future research

This study focused exclusively on teenage high school girls in the United States, which limits the generalizability of the findings across different cultural and demographic contexts. Future research would benefit from conducting comparable surveys in other countries to examine cross-cultural similarities and differences in how teenage girls engage with online health information. Such comparative studies could reveal how cultural norms, media environments, and health education systems shape teenagers' perceptions and behaviors. Additionally, exploring how teenage girls' experiences and perspectives differ from those of teenage boys would provide a more comprehensive understanding of gendered dynamics in digital health information consumption. Investigating these differences could inform the development of more inclusive and tailored health literacy interventions that address the distinct needs of diverse adolescent populations. In our quantitative analysis, the proportion of explained variance for certain outcome variables is relatively low. However, prior research has noted that modest explained variance is typical in social science studies and does not, by itself, suggest model inadequacy—particularly when the focus is on testing theory-driven relationships rather than achieving high predictive accuracy (Abelson, 1985; Ozili, 2023). The central aim of this study was to assess theoretically derived associations, rather than to construct an exhaustive predictive model. Future research could incorporate additional predictors to account for more variance. Finally, since the findings are based on self-reported survey data, the findings—particularly regarding digital competence levels—may be subject to bias including overestimation of actual abilities. Future studies should consider using performance-based measures to more accurately assess evaluative ability.

Conclusion

This study provides valuable insights into how teenage girls in the United States navigate, evaluate, and interpret health information on social media. By identifying key barriers such as information overload, conflicting messages, and misinformation, the research underscores the complex challenges these users face in digital health environments. Moreover, the influence of individual and socioeconomic factors

highlights the need for targeted interventions that address disparities in digital competence. These findings contribute to the broader field of health communication and point to the importance of implementing evidence-based digital literacy initiatives to better support teenage girls' critical engagement with online health content.

Data availability statement

The datasets generated and/or analyzed during the current study are not publicly available due to participant confidentiality and data protection regulations. Requests to access the datasets should be directed to hseo@ku.edu.

Ethics statement

The studies involving humans were approved by University of Kansas Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

HS: Writing – review & editing, Writing – original draft, Supervision, Formal analysis, Software, Investigation, Resources, Data curation, Funding acquisition, Conceptualization, Project administration, Methodology, Visualization, Validation. KB: Investigation, Writing – original draft, Data curation, Writing – review & editing, Methodology. OM: Writing – original draft, Investigation, Writing – review & editing, Data curation. NI: Writing – review & editing, Writing – original draft. RC: Writing – original draft, Writing – review & editing. MC: Writing – review & editing, Writing – original draft. HH: Writing – original draft, Writing – review & editing. BJ: Writing – review & editing, Writing – original draft. AI:

Writing – review & editing, Writing – original draft. TD: Writing – review & editing, Writing – original draft.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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