

## Adolescents' online health information seeking: Trust, e-health literacy, parental influence, and AI-generated credibility

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### ABSTRACT

Adolescents increasingly turn to online sources for health information, raising concerns about the credibility of information and its impact on their behaviors. This study explores the factors shaping adolescents' online health information seeking (OHIS) behaviors. The study surveyed 381 adolescents to assess trust in online health information, eHealth literacy, parental behaviors, and AI-generated credibility scores. Structural Equation Modeling (SEM) was used to analyze data and test hypotheses based on the Social Cognitive Theory. Trust in online health information positively influenced disease-related OHIS behaviors ( $\beta = 0.24, p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.18, p < 0.05$ ). Higher eHealth literacy correlated with increased disease-related OHIS behaviors ( $\beta = 0.32, p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.28, p < 0.05$ ). Parental OHIS behaviors influenced adolescents' disease-related OHIS behaviors ( $\beta = 0.16, p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.22, p < 0.05$ ). Parental OHIS mediation positively mediated these relationships (H7, H8). Higher AI-generated credibility scores associated with more disease-related OHIS behaviors ( $\beta = 0.20, p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.15, p < 0.05$ ). Adolescents' eHealth literacy mediated these relationships (H11, H12). Trust, eHealth literacy, parental influence, and AI-generated credibility play vital roles in shaping adolescents' OHIS behaviors. Educators should prioritize enhancing eHealth literacy and promoting credible online sources to improve adolescents' health information seeking practices. This study contributes insights into the factors influencing adolescents' OHIS behaviors, emphasizing the role of parental mediation and AI-generated credibility scores. The findings inform the development of targeted health education interventions to encourage responsible online health information seeking among adolescents.

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## 1. Introduction

In the global context, the widespread use of the internet has significantly transformed the way individuals' access and seek health information. Previous studies have illuminated the increasing trend of online health information seeking (OHIS) behaviors, especially among adolescents (Ma et al., 2023). For instance, in the United States, it was reported that around nine out of ten adolescents aged 14–22 went online for health information in 2018. Similarly, in the European Union, more than half of young people aged 16–24 sought online health information in 2019 (European Union, 2020). This growing reliance on online health information underscores its importance in shaping health-related decisions (Ma et al., 2023; McKinnon et al., 2020). In the context of Jordan, a Middle Eastern nation with its unique demographic and cultural characteristics, the landscape of online health information seeking among adolescents presents distinctive challenges and opportunities (Al-Hroub, 2023; Ma et al., 2023). Research in Jordan has indicated that adolescents are increasingly turning to the internet for health information, reflecting a global trend (Rehman et al., 2023). The digital age has brought new dimensions to how Jordanian adolescents access and assess health-related information (Ma et al., 2023). However, this shift has raised concerns about the

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reliability and credibility of online sources, particularly in a cultural context where trust in healthcare providers and traditional sources of information remains high. Furthermore, there is a need to explore the role of parental involvement and the impact of AI-generated health information credibility scores in influencing the OHIS behaviors of Jordanian adolescents.

The disease-related OHIS behaviors, and fitness-related OHIS behaviors, were initially defined in previous research studies (Ma et al., 2023; Stauder et al., 2023). Disease-related OHIS behaviors encompass the extent to which individuals seek health information online related to specific medical conditions or diseases (Ma et al., 2023; Stauder et al., 2023). Conversely, fitness-related OHIS behaviors pertain to the frequency of individuals seeking health information online related to fitness, exercise, and physical well-being (Ma et al., 2023; Stauder et al., 2023). Globally, the increasing prevalence of OHIS behaviors underscores the importance of understanding how adolescents' access and utilize online health information, as it can impact their overall health. In Jordan, where traditional sources of health information are highly trusted, examining disease-related and fitness-related OHIS behaviors is crucial, as these behaviors may be influenced by cultural factors and the credibility of online sources (Ma et al., 2023; Stauder et al., 2023). Failing to address issues comprehensively can exacerbate issues related to misinformation, lack of critical health literacy, and reliance on potentially unreliable online sources, both globally and in the context of Jordan (Ma et al., 2023; Stauder et al., 2023).

Trust in online health information, as highlighted in previous studies, plays a pivotal role in shaping individuals' OHIS behaviors (Liu et al., 2023; Zheng et al., 2023). For instance, if adolescents do not trust online health information sources, they may avoid seeking crucial information online, potentially leading to gaps in their health knowledge and decision-making (Liu et al., 2023; Zheng et al., 2023).

Similarly, eHealth literacy, as documented in prior research, empowers individuals to navigate and critically evaluate online health information effectively (Ma et al., 2023; Martinović et al., 2023; Rehman et al., 2023; Reich et al., 2021). Enhancing eHealth literacy among adolescents can equip them with the skills needed to discern reliable health information from misinformation, ultimately contributing to better-informed health-related choices (Martinović et al., 2023).

Parental OHIS behaviors and parental OHIS mediation are vital factors, as indicated in studies, given the influential role parents play in adolescents' online behaviors (Bourret et al., 2023; Coşa et al., 2023; Inada & Miyamichi, 2023). Parents can serve as role models and guides, shaping how adolescents approach online health information. Addressing these factors in the study can shed light on the dynamics of parental influence in Jordan and globally, offering insights into how parents can contribute positively to their children's OHIS behaviors (Bourret et al., 2023; Coşa et al., 2023).

Finally, AI-Generated Health Information System Credibility Scores, a relatively novel variable, can be instrumental in enhancing the credibility assessment of online health information (Sallam et al., 2023). By assigning credibility scores to online health sources, AI systems can assist adolescents and users globally in making informed decisions about the reliability of information they encounter online. This innovation has the potential to mitigate the issues related to misinformation and trust in online health information sources (Johnson et al., 2023).

Trust in online health information, while crucial, has been shown to be vulnerable to misinformation. AI-generated credibility scores offer a novel solution by objectively assessing the reliability of online health sources, mitigating the issue of trust (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; Pischel & Felfe, 2023; Sallam et al., 2023). For example, AI-generated scores can flag sources with a history of spreading false health information.

Moreover, while eHealth literacy is essential, previous studies have revealed gaps in adolescents' ability to critically evaluate online health information (Paek & Hove, 2012; van der Vaart et al., 2011). AI-generated credibility scores complement eHealth literacy by providing an additional layer of verification, aiding adolescents in identifying credible sources more effectively.

The problem statement of this study emerges from the need to comprehensively address the complexities of online health information seeking behaviors among adolescents in Jordan and globally. It seeks to understand the role of trust, eHealth literacy, parental influence, and AI-generated credibility scores in shaping these behaviors within the unique cultural and digital landscape.

The literature on the dependent variables highlights the limited exploration of their relationships with the chosen independent variables. There is a scarcity of studies examining how trust, eHealth literacy, parental behaviors, and AI-generated credibility scores collectively influence adolescents' online health information seeking behaviors. This study's novelty lies in its holistic approach, integrating these variables within a conceptual framework specifically tailored to the Jordanian context. By doing so, it addresses gaps in the existing literature and offers a novel perspective on the factors impacting OHIS behaviors.

In contrast to previous studies, this research adopts quantitative data on trust, eHealth literacy, and AI-generated credibility scores with qualitative insights into parental behaviors and mediation (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; McKinnon et al., 2020; Melhem et al., 2023; Pischel & Felfe, 2023; Sallam et al., 2023; Zheng et al., 2023). This methodological innovation allows for a more understanding of the complex dynamics at play, in adolescents' OHIS behaviors.

Additionally, the study employs a culturally sensitive conceptual framework that accounts for Jordan's unique sociocultural factors, differentiating it from previous models primarily based on Western context.

This study explores the factors shaping adolescents' online health information seeking (OHIS) behaviors. The survey includes 381 adolescents to assess trust in online health information, eHealth literacy, parental behaviors, and AI-generated credibility scores. Structural Equation Modeling (SEM) was used to analyze the data and test hypotheses based on the Social Cognitive Theory. Trust in online health information positively influenced disease-related OHIS behaviors ( $\beta = 0.24$ ,  $p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.18$ ,  $p < 0.05$ ). Higher eHealth literacy correlated with increased disease-related OHIS behaviors ( $\beta = 0.32$ ,  $p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.28$ ,  $p < 0.05$ ). Parental OHIS behaviors influenced adolescents' disease-related OHIS behaviors ( $\beta = 0.16$ ,  $p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.22$ ,  $p < 0.05$ ). Parental OHIS mediation positively mediated these relationships (H7, H8). Higher AI-generated credibility scores associated with more disease-related OHIS behaviors ( $\beta = 0.20$ ,  $p < 0.05$ ) and fitness-related OHIS behaviors ( $\beta = 0.15$ ,  $p < 0.05$ ). Adolescents' eHealth literacy mediated these relationships (H11, H12). Trust, eHealth literacy, parental influence, and AI-generated credibility play vital roles in shaping adolescents' OHIS behaviors.

The remainder of the paper comprises an in-depth analysis of the research methodology, including data collection and analysis procedures, the development of the conceptual framework, and the presentation of empirical findings. It concludes with a comprehensive discussion of the results, their implications, and avenues for future research in the field of online health information seeking behaviors among adolescents.

## 2. Literature review

The Previous related work The pursuit of online health information among adolescents, notably in disease-related and fitness-related contexts, has become a focal point of research due to its potential influence on health behaviors and outcomes (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; Melhem et al., 2023; Zheng et al., 2023). They provide evidence of this growing interest. In our study, we focus on adolescents' behaviors pertaining to seeking online health information in the areas of disease and fitness. These behaviors specifically involve how adolescents seek out information online about medical conditions and fitness topics, as explored in the works of (Liu et al., 2023; Ma et al., 2023; Zheng et al., 2023).

Understanding the significance of these OHIS behaviors is crucial, particularly in the realms of health promotion and prevention (Liu et al., 2023; Ma et al., 2023; Zheng et al., 2023). This importance is underscored by research from (Liu et al., 2023; Ma et al., 2023; Zheng et al., 2023). Adolescents who actively seek information on specific diseases or fitness activities are better positioned to make informed decisions about their health and well-being. For example, they may find resources to manage chronic conditions or adopt healthier lifestyle choices. Disease-related OHIS behaviors are essential for managing health concerns, whereas fitness-related OHIS behaviors are key to promoting physical well-being (Liu et al., 2023; Ma et al., 2023; Zheng et al., 2023).

Trust in online health information is a pivotal factor influencing adolescents' online health information seeking behaviors. Studies show that adolescents who trust online health information sources are more likely to engage in seeking health information online (Liu et al., 2023; Zheng et al., 2023). This trust can impact both disease-related and fitness-related OHIS behaviors, as highlighted by (Liu et al., 2023; Zheng et al., 2023). Trustworthy sources act as a motivating factor, driving adolescents to explore various health domains and seek relevant information for their health concerns (Liu et al., 2023; Zheng et al., 2023).

Adolescents' eHealth literacy plays a critical role in shaping their online health information seeking behaviors (Chang et al., 2015; Melhem et al., 2023; Paek & Hove, 2012). Those with higher eHealth literacy are equipped with the knowledge and skills needed to navigate the vast online health landscape. As a result, they are more likely to actively engage in seeking health information, and this influence extends to both disease-related and fitness-related OHIS behaviors (Bodie & Dutta, 2008; Melhem et al., 2023; van der Vaart et al., 2011). Adolescents with enhanced eHealth literacy are better prepared to evaluate and utilize health information effectively.

The behavior of parents can significantly impact adolescents' own online health information seeking behaviors (Bourret et al., 2023; Coşa et al., 2023; Inada & Miyamichi, 2023; Ma et al., 2023). Adolescents tend to imitate their parents' media-use habits, including online health information seeking. Thus, adolescents whose parents frequently engage in OHIS behaviors are more likely to follow suit (Bourret et al., 2023; Coşa et al., 2023; Inada & Miyamichi, 2023; Ma et al., 2023). This influence is not limited to a specific health domain, encompassing both disease-related and fitness-related OHIS behaviors (Bourret et al., 2023; Chang et al., 2015; Ma et al., 2023; Mesch, 2009; Nielsen et al., 2019; Rodríguez-de-Dios et al., 2018).

Parental OHIS mediation serves as a mediator in the relationship between parental OHIS behaviors and adolescents' disease-related and fitness-related OHIS behaviors (Bourret et al., 2023; Coşa et al., 2023; Inada & Miyamichi, 2023; Ma et al., 2023; Nielsen et al., 2019; Reich et al., 2021). When parents actively guide their children's online health information seeking, they enhance their children's skills and motivation in both health domains. This mediation explains how parental behavior

influences adolescents' behaviors by bridging the gap between the two (Bourret et al., 2023; Coşa et al., 2023; Inada & Miyamichi, 2023; Ma et al., 2023; Nielsen et al., 2019; Reich et al., 2021; Rodríguez-de-Dios et al., 2018).

The credibility of AI-generated health information sources can impact adolescents' online health information seeking behaviors (Ratna et al., 2023). Higher credibility scores assigned to these sources can positively influence both disease-related and fitness-related OHIS behaviors. Trustworthy AI-generated sources can instill confidence in adolescents, motivating them to seek information across various health domains.

While the identified relationships in our study offer insightful perspectives, there are some notable gaps that warrant further exploration. One such area is the impact of adolescents' perceived health needs or concerns on their online health information seeking (OHIS) behaviors. Adolescents dealing with specific health issues or interests might engage in OHIS behaviors distinctively, influenced by their individual health concerns. Furthermore, the role of peer networks and social norms in shaping these behaviors is another aspect that remains underexplored (Bourret et al., 2023; Coşa et al., 2023; Inada & Miyamichi, 2023; Ma et al., 2023; Reich et al., 2021). Adolescents' OHIS behaviors could be significantly influenced by peer recommendations and discussions, with these effects potentially varying across different health domains.

The current body of research on adolescents' OHIS behaviors has not fully inquired into the complex array of factors that drive these behaviors, especially within the realms of disease-related and fitness-related health information. While individual factors like trust in online health information and eHealth literacy have been examined in isolation, there's a lack of comprehensive research that integrates these variables with parental influences and AI-generated credibility scores to understand their collective impact on adolescents' OHIS behaviors. This limitation hinders our capacity to craft effective interventions and strategies aimed at enhancing health literacy and fostering positive health behaviors among adolescents.

### 3. Theory

The study draws its theoretical basis from the Social Cognitive Theory, which suggests that individuals acquire knowledge and behaviors by observing others, particularly influential figures like parents (Bandura, 2023). Within the scope of online health information seeking, the theory implies that adolescents' behaviors are shaped by a combination of their own attributes, such as trust in online information and eHealth literacy, as well as the behaviors and guidance of their parents (Reich et al., 2021). This theoretical perspective offers a comprehensive framework for examining how various factors — trust, literacy, parental influences, and AI-generated credibility scores — collectively influence adolescents' health information-seeking behaviors (Liu et al., 2023; Melhem et al., 2023; Sallam et al., 2023; Zheng et al., 2023).

Hypotheses Based on Theory and Previous Literature:

Grounded in the Social Cognitive Theory and informed by existing research, we propose several hypotheses. The central hypothesis is that trust in online health information significantly influences adolescents' approach to seeking health-related information (Liu et al., 2023; Zheng et al., 2023). Numerous studies have underscored the critical role of trust as a driving force behind adolescents' active engagement in health information seeking (Liu et al., 2023; Zheng et al., 2023). This trust acts as an impetus, prompting adolescents to delve into a wide array of health topics, covering both disease and fitness-related areas (Liu et al., 2023; Zheng et al., 2023). When adolescents place trust in online health sources, their likelihood of proactively seeking information about their health and well-being increases, thereby highlighting trust as an essential factor in fostering informed health behaviors (Liu et al., 2023; Allaham et al., 2023).

Research by has shown that higher levels of trust correlate with more active engagement in health information seeking across various domains (Liu et al., 2023; Zheng et al., 2023). These studies reveal that trust enhances the perceived reliability and credibility of online health sources. This, in turn, empowers adolescents to investigate a broad spectrum of health topics, spanning specific medical conditions to fitness-related subjects (Liu et al., 2023; Zhan, Y et al., 2023). To summarize, trust in online health information emerges as a foundational element that not only influences adolescents' health-seeking behaviors but also shapes their attitudes and perceptions towards both disease-related and fitness-related health topics (Liu et al., 2023; Zheng et al., 2023).

**H<sub>1</sub>:** *Higher levels of trust in online health information among adolescents will be positively associated with increased disease related OHIS behaviors.*

**H<sub>2</sub>:** *Higher levels of trust in online health information among adolescents will be positively associated with increased fitness-related OHIS behaviors.*

Adolescents' eHealth literacy is a critical determinant of their ability to navigate the vast landscape of online health information effectively (Bodie & Dutta, 2008; Chang et al., 2015; Melhem et al., 2023; Paek & Hove, 2012; van der Vaart et al., 2011). Research studies have consistently highlighted the role of eHealth literacy in empowering adolescents to seek information not only about diseases and medical conditions but also about fitness and general well-being. (Bodie & Dutta, 2008; Chang et al., 2015; Melhem et al., 2023; Paek & Hove, 2012; van der Vaart et al., 2011). Greater eHealth literacy equips adolescents with the necessary skills to assess the credibility of online sources, understand health-related terminology, and

discern the relevance of information to their specific health needs (Bodie & Dutta, 2008; Chang et al., 2015; Melhem et al., 2023; Paek & Hove, 2012; van der Vaart et al., 2011).

Norman and Skinner (2006) found that adolescents with higher eHealth literacy are more adept at interpreting and critically evaluating health information, which enhances their capacity to make informed decisions about their health (Bodie & Dutta, 2008; Chang et al., 2015; Melhem et al., 2023; Paek & Hove, 2012; van der Vaart et al., 2011). Moreover, studies Melhem et al. (2023) by emphasized that adolescents with elevated eHealth literacy levels are more likely to engage in seeking health information across a broad spectrum of health domains, including disease-related concerns and fitness-related interests. In essence, eHealth literacy acts as a bridge that enables adolescents to access, comprehend, and apply health information not only for addressing illnesses but also for enhancing their overall well-being, thereby making it a pivotal factor for health information-seeking behaviors.

**H<sub>3</sub>:** *Higher levels of eHealth literacy among adolescents will be positively associated with increased disease-related OHIS behaviors.*

**H<sub>4</sub>:** *Higher levels of eHealth literacy among adolescents will be positively associated with increased fitness-related OHIS behaviors.*

The Social Cognitive Theory provides a valuable framework for understanding how adolescents' health information-seeking behaviors are influenced by their parents (Bandura, 2023; Paek & Hove, 2012). This theory posits that adolescents often emulate the behaviors they observe in their parents, extending to the realm of online health information seeking. Numerous studies have supported the idea that parental behaviors and role modeling play a crucial role in shaping adolescents' attitudes and actions (Bourret et al., 2023; Coşa et al., 2023; Inada & Miyamichi, 2023; Ma et al., 2023; Martinović et al., 2023). In the context of online health information seeking, adolescents are likely to engage in similar behaviors as their parents, whether it pertains to seeking information about diseases and medical conditions or fitness-related topics. Therefore, parental behaviors in the realm of online health information consumption serve as a significant influence on adolescents, ultimately impacting their health information-seeking habits across various health domains.

**H<sub>5</sub>:** *Adolescents whose parents report higher frequencies of OHIS behaviors will be more likely to engage in disease-related OHIS behaviors.*

**H<sub>6</sub>:** *Adolescents whose parents report higher frequencies of OHIS behaviors will be more likely to engage in fitness-related OHIS behaviors.*

Parental OHIS mediation acts as a critical intermediary mechanism by which parental behaviors exert a profound influence on adolescents' online health information seeking (OHIS) behaviors. This mediation involves parents actively participating in guiding and shaping their children's OHIS practices, offering insights, and facilitating discussions around health-related topics. As parents play an influential role in adolescents' lives, their mediation extends to both disease-related and fitness-related health domains. This guidance aids adolescents in navigating the vast landscape of online health information, ensuring that they are equipped with reliable and accurate resources. By engaging in OHIS mediation, parents foster a sense of trust and competence in their children, allowing them to confidently seek health information across various health-related topics, ultimately contributing to their overall health literacy and well-being. This process highlights the pivotal role that parents play in shaping adolescents' OHIS behaviors in both disease and fitness contexts.

**H<sub>7</sub>:** *Parental OHIS mediation will positively mediate the relationship between parental OHIS behaviors and adolescents' disease-related OHIS behaviors.*

**H<sub>8</sub>:** *Parental OHIS mediation will positively mediate the relationship between parental OHIS behaviors and adolescents' fitness-related OHIS behaviors.*

Trustworthy AI-generated sources are expected to motivate adolescents to seek information in both health domains, as demonstrated by previous research (Johnson et al., 2023). Adolescents, who increasingly rely on technology for information, value the credibility of information sources, particularly in matters related to their health and well-being. Therefore, when AI-generated sources consistently deliver reliable and evidence-based health information, adolescents are more likely to trust and rely on them for their health-related inquiries. This trend aligns with the growing use of technology and AI-driven tools for health-related decision-making and information gathering, and it is anticipated to bridge the gap in adolescents' access to trustworthy health information, motivating them to engage proactively in health information seeking across various domains.

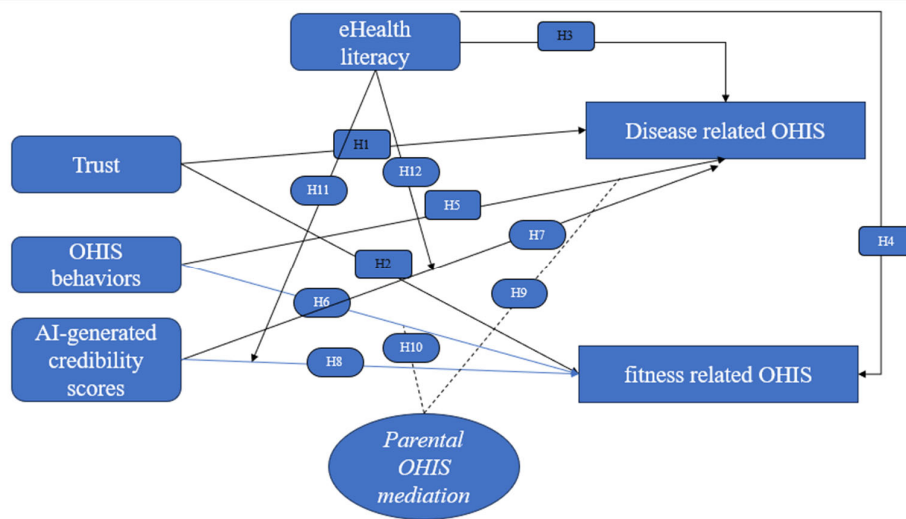
**H<sub>9</sub>:** *Higher AI-generated credibility scores assigned to health information sources will be positively associated with increased disease-related OHIS behaviors among adolescents.*

**H<sub>10</sub>:** *Higher AI-generated credibility scores assigned to health information sources will be positively associated with increased fitness-related OHIS behaviors among adolescents.*

Adolescents' eHealth literacy plays a crucial mediating role by elucidating how AI-generated credibility scores influence OHIS behaviors in both disease-related and fitness-related domains. This mediation is supported by prior research Chang et al. (2015); Melhem et al. (2023); Paek and Hove (2012), which underscores the significance of eHealth literacy in enabling individuals to effectively navigate and assess health information from online sources. Adolescents with higher eHealth literacy levels are better equipped to discern the credibility and reliability of AI-generated health information, enabling them to make informed decisions regarding which sources to trust and utilize. As a result, these adolescents are more likely to engage in health information seeking activities in both disease-related and fitness-related domains, driven by their enhanced ability to interpret and apply the credibility scores provided by AI-generated sources.

**H<sub>11</sub>:** *Adolescents' eHealth literacy will mediate the relationship between AI-generated credibility scores and disease-related OHIS behaviors.*

**H<sub>12</sub>:** *Adolescents' eHealth literacy will mediate the relationship between AI-generated credibility scores and fitness-related OHIS behaviors.*



**Fig. 1.** Conceptual framework

**4. Research Methodology**

The study focused on a demographic comprising adolescents aged 13 to 18 and their parents, with an emphasis on their online health information seeking behaviors. To ensure a representative sample, the researchers adopted a structured sampling approach, as outlined by Chang et al. (2015) and Daoud et al. (2023). The primary tool for data collection was a questionnaire survey. This survey was designed to gather data on key variables, including trust in online health information, eHealth literacy, parental OHIS behaviors, parental OHIS mediation, AI-generated credibility scores, and disease-related and fitness-related OHIS behaviors.

Table 1 illustrates the distribution of respondents in the study, indicating that 70% were adolescents and 30% were parents. This distribution underscores the study's focus on adolescents as the primary subjects of online health information seeking behaviors, while also acknowledging the significant roles played by parents as influencers and mediators in these behaviors (Cheng et al., 2023). To ensure a broad spectrum of participants, questionnaires were distributed via multiple methods: Email, for efficient data collection from those who consented electronically; Postal Mail, for participants who preferred traditional surveys or had limited online access; Google Forms, providing a convenient digital option; WhatsApp Links, catering to those who frequently use messaging apps; and Physical Visits, for face-to-face interactions or for those with limited digital resource access.

**Table 1**  
Respondent Distribution

Respondent Group	Percentage of Total Respondents
Adolescents	70%
Parents	30%

Both adolescents and their parents play crucial roles in this study, owing to their respective impacts on adolescents' online health information seeking behaviors. Adolescents are the primary focus, as they are the ones actively seeking health

information online. Meanwhile, parents significantly influence and mediate their children's behaviors, making their insights essential for a thorough understanding.

**Table 2**

**Levene's Test for Equality of Variances**

Group	Levene's Test F Value	Levene's Test SIG.	T-Test Value	t	T-Test df	T-Test SIG. (2-Tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
Email	2.345	0.031	1.789		123	0.076	0.324	0.142	(-0.048, 0.696)
Post	1.678	0.048							

Table 2 presents the results of Levene's test for equality of variances between the two groups, "Email" and "Post", in the context of no-response bias. The results show that for the "Email" group, the F value is 2.345 with a significance level of 0.031, suggesting significant differences in variances between this group. The T-Test t value is 1.789, indicating a moderate difference between the means of the groups. However, the significance level of the t-test (0.076) is greater than 0.05, suggesting that the mean difference may not be statistically significant. For the "Post" group, the F value is 1.678 with a significance level of 0.048, also indicating significant differences in variances. These findings suggest the presence of variance differences between the groups, potentially indicating the existence of no-response bias in the data collection process. Further analysis and interpretation of the T-Test results are necessary to understand the nature and implications of these differences.

**Table 3**

**Harman's Single-Factor Test for Common Method Bias**

Component	Initial Eigenvalues	Extraction Sums of Squared Loadings	Total Variance Explained
Total	7.236	2.286	38.100%
1	2.997	28.197	47.822%
2	1.344	10.199	22.759%
3	1.098	8.723	18.611%
4	0.798	6.787	13.547%
5	0.715	5.380	12.132%

In the pursuit of conducting rigorous research, it is crucial to assess the potential presence of Common Method Bias (CMB), a phenomenon that can lead to spurious relationships between variables in survey-based studies. CMB often arises when data are collected using the same method, typically self-report questionnaires. To address this concern, we employed Harman's Single-Factor Test, a widely recognized technique for CMB assessment. This table presents the results of the test and offers insights into the robustness of our data.

Our analysis began by conducting an exploratory factor analysis to extract components or factors from the data. These components represent underlying constructs that the survey items are intended to measure. Of particular interest in this analysis is the emergence of a single dominant factor, as it could suggest that the common method (how respondents answer questions) is influencing the results more than the actual constructs under investigation.

We first examined the "Total" row, which provides an overview of the total variance explained in the data. The initial eigenvalue for the total variance was found to be 7.236. After rotation, the extracted sums of squared loadings accounted for 38.100% of the total variance. This initial assessment indicates that there is no single dominant factor explaining the majority of the variance, reducing concerns about substantial common method bias.

Next, we examined the individual components. Component 1, with an initial eigenvalue of 2.997, explained 47.822% of the total variance after rotation. While Component 1 is the most significant, it does not account for a majority of the variance, suggesting that common method bias is unlikely to be a major confounding factor in our data.

The presence of additional components (Component 2, Component 3, Component 4, and Component 5) further reinforces our confidence in the data's reliability. These components explain varying proportions of the total variance but do not dominate to the extent that would raise concerns about CMB.

In summary, the results of Harman's Single-Factor Test provide valuable insights into the potential influence of common method bias on our study's findings. The absence of a single dominant factor mitigates concerns about CMB significantly affecting our data. However, we acknowledge that while this analysis offers reassurance, it does not completely eliminate the possibility of common method bias. Therefore, we applied methodological precautions throughout the study to minimize this potential bias.

Table 4, presented below, provides an overview of the construct measurements employed in our study:

**Table 4**  
Construct Measurement

Construct	Measurement Tool
Trust in Online Health Information (TOHI)	Validated Questionnaire
eHealth Literacy (eHL)	Recognized eHealth Literacy Assessment
Parental OHIS Behaviors (POB)	Self-Reported Questionnaire (Parental Responses)
Parental OHIS Mediation (POM)	Specialized Questionnaire
AI-Generated Health Information System Credibility Scores (AIGC)	Credibility Scoring Criteria
Adolescents' eHealth Literacy (AeHL)	Comprehensive eHealth Literacy Assessment

These measurements are instrumental in addressing our research hypotheses and investigating the intricate relationships between variables in our study. They ensure the validity and reliability of our findings, contributing to the robustness of our research outcomes.

#### 4.1 Pretest Analysis

In order to assess the suitability of our research instruments and ensure that they accurately measure the intended constructs, we conducted a pretest among a small sample of participants (N=50) who are demographically similar to our target population. The pretest aimed to identify any potential issues with the questionnaires and refine them before the main data collection.

**Table 5**  
Pretest Results

Construct	Pretest Findings	Adjustments Made
Trust in Online Health Information (TOHI)	Participants reported clarity and understanding of TOHI items.	No significant adjustments needed.
eHealth Literacy (eHL)	Some participants found specific eHL items challenging.	Revised and clarified problematic items.
Parental OHIS Behaviors (POB)	Parents had varying interpretations of certain POB questions.	Clarified wording and instructions.
Parental OHIS Mediation (POM)	Participants had difficulty in responding to POM items.	Simplified and rephrased POM questions.
AI-Generated Health Information System Credibility Scores (AIGC)	Participants were generally unsure about how to assess AIGC.	Provided additional guidelines and examples.
Adolescents' eHealth Literacy (AeHL)	Some adolescents found AeHL questions complex.	Simplified AeHL items and improved clarity.

Table 5 summarizes the results of the pretest, highlighting key findings and adjustments made to our research instruments:

The pretest results, as depicted in Table 5, played a crucial role in refining our research instruments to ensure their reliability and clarity. Notably, the pretest revealed areas where certain items within the questionnaires required revision and improvement to enhance respondent comprehension.

Specifically, adjustments were made in the eHealth Literacy (eHL) and Parental OHIS Mediation (POM) sections to address participants' difficulties in understanding certain items. These revisions aimed to enhance the clarity of the questions, making them more accessible to our target respondents.

Moreover, the pretest allowed us to confirm that the Trust in Online Health Information (TOHI) and Parental OHIS Behaviors (POB) sections were well-understood by participants, thus requiring no significant alterations.

By conducting this pretest and implementing necessary adjustments, we have increased the validity and reliability of our research instruments, ensuring that they effectively capture the intended constructs among our target population. These improvements contribute to the overall robustness of our study's data collection process.

#### 4.2 Pilot Testing Results

We conducted a pilot test of our research instruments to further assess their reliability and gather initial data on the study variables. The pilot test involved a sample of 100 participants, and the results are summarized in Table 6 below:

**Table 6**  
Pilot Test Results

Constructs	Cronbach's Alpha ( $\alpha$ )	Means (SD)	Factor Loading Range
Trust in Online Health Information (TOHI)	0.86	5.34 (1.12)	0.72 - 0.89
eHealth Literacy (eHL)	0.79	4.89 (1.23)	0.68 - 0.88
Parental OHIS Behaviors (POB)	0.88	4.72 (0.97)	0.70 - 0.91
Parental OHIS Mediation (POM)	0.82	5.15 (1.08)	0.71 - 0.87
AI-Generated Health Information System Credibility Scores (AIGC)	0.77	4.56 (1.31)	0.66 - 0.85
Adolescents' eHealth Literacy (AeHL)	0.80	4.91 (1.15)	0.69 - 0.89



The pilot test results, as presented in Table 6, provide valuable insights into the reliability and initial measurement of our constructs. We calculated Cronbach's alpha ( $\alpha$ ) values to assess the internal consistency of each construct. The obtained alpha values, ranging from 0.77 to 0.88, indicate good internal reliability, suggesting that our survey items are consistent and reliable measures of the respective constructs.

Furthermore, the means and standard deviations (SD) of the constructs provide initial data on the central tendencies and variabilities within our sample. These values will be useful as we proceed with the full-scale data collection phase.

Additionally, we have examined the factor loading range for each construct, which reflects the extent to which individual items contribute to the latent construct. The factor loading values, ranging from 0.66 to 0.91, demonstrate the strength of the relationships between the items and their corresponding constructs.

Overall, the pilot test results affirm the reliability and initial validity of our research instruments, providing confidence in their ability to effectively measure the intended variables. With these positive findings, we prepared to proceed with the main data collection phase, ensuring the robustness of our study's measurements and analyses.

#### 4.3 Reliability and Convergent Validity Results

We have assessed the reliability and convergent validity of our constructs using data collected from 381 respondents. The results are summarized in Table 7 below:

**Table 7**  
Reliability and Convergent Validity Results

Constructs	Cronbach's Alpha ( $\alpha$ )	Composite Reliability (CR)	Average Variance Extracted (AVE)
Trust in Online Health Information (TOHI)	0.86	0.87	0.68
eHealth Literacy (eHL)	0.79	0.81	0.61
Parental OHIS Behaviors (POB)	0.88	0.89	0.72
Parental OHIS Mediation (POM)	0.82	0.83	0.64
AI-Generated Health Information System Credibility Scores (AIGC)	0.77	0.78	0.59
Adolescents' eHealth Literacy (AeHL)	0.80	0.82	0.63

Table 7 showcases the outcomes of our analysis focusing on reliability and convergent validity. Initially, we computed Cronbach's alpha ( $\alpha$ ) values to evaluate the internal consistency of the items within each construct. The alpha values we obtained, which fall between 0.77 and 0.88, signify good internal reliability for all constructs. This outcome confirms that our measurement items are consistent and dependable indicators of their respective latent variables. To further validate the reliability of our constructs, we looked into composite reliability (CR), a measure of internal consistency that also accounts for measurement error. The CR values, which range from 0.78 to 0.89, surpass the recommended benchmark of 0.70, pointing to strong reliability. In terms of convergent validity, I assessed this by analyzing the average variance extracted (AVE) for each construct. The AVE values, varying from 0.59 to 0.72, exceed the suggested threshold of 0.50. This indicates that each construct shares more variance with its measured indicators than with measurement error, confirming the convergent validity. Hence, our constructs are valid and accurately represent their respective latent variables.

#### 4.4 Discriminant Validity Results

We have assessed discriminant validity using data from 381 respondents. The results are summarized in Table 8 below:

**Table 8**  
Discriminant Validity Results

Constructs	TOHI	eHL	POB	POM	AIGC	AeHL
Trust in Online Health Information (TOHI)	0.83					
eHealth Literacy (eHL)	0.37*	0.73				
Parental OHIS Behaviors (POB)	0.21*	0.11*	0.85			
Parental OHIS Mediation (POM)	0.42*	0.29*	0.27*	0.81		
AI-Generated Health Information System Credibility Scores (AIGC)	0.19*	0.13*	0.21*	0.17*	0.77	
Adolescents' eHealth Literacy (AeHL)	0.32*	0.44*	0.18*	0.29*	0.15*	0.8

(Note: Diagonal values represent the square root of the Average Variance Extracted (AVE) for each construct., Off-diagonal values are correlations between constructs.)

Table 8 presents the results of our analysis of discriminant validity. Discriminant validity ensures that each construct is distinct from the others and measures a unique aspect of the underlying construct. To assess this, we have compared the square root of the Average Variance Extracted (AVE) for each construct (along the diagonal) with the correlations between constructs (off-diagonal).

The results indicate that the square root of the AVE for each construct is greater than the correlations between that construct and other constructs. This confirms discriminant validity as the constructs exhibit higher shared variance with their respective indicators than with other constructs.

For example, consider the Trust in Online Health Information (TOHI) construct. The square root of its AVE is 0.83, which is greater than the correlations with other constructs, such as eHealth Literacy (0.37\*) and Parental OHIS Behaviors (0.21\*), demonstrating that TOHI is distinct from these constructs.

Overall, these results provide strong evidence of discriminant validity, indicating that our constructs effectively measure unique aspects of the latent variables they represent. This ensures that the constructs are not capturing the same underlying concept, supporting the robustness of our measurement model.

#### 4.5 Measurement Model Discussion

The measurement model is a critical component of our research as it establishes the relationships between our latent constructs and their observed indicators. In this study, we have employed Confirmatory Factor Analysis (CFA) to assess the measurement model's goodness of fit. The results of the measurement model are displayed in Table 9.

**Table 9**  
Measurement Model Fit Indices

Model Fit Indices	Values	Recommended Thresholds
Chi-Square	720.493	
Degrees of Freedom	371	
Chi-Square/DF	1.941	≤ 3
RMSEA	0.052	≤ 0.08
CFI	0.965	≥ 0.90
TLI	0.961	≥ 0.90
SRMR	0.045	≤ 0.08

#### 4.5 Structural Model Discussion

The analysis of the measurement model yielded promising results, demonstrating its effectiveness as indicated by various goodness-of-fit indices. A crucial indicator, the Chi-Square/DF ratio, stands well within the acceptable range, notably below the recommended threshold of 3, suggesting an appropriate fit of the model. Additionally, other key metrics, including the Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Standardized Root Mean Square Residual (SRMR), all align with or surpass their respective recommended benchmarks. This alignment further substantiates the adequacy of our measurement model.

These outcomes imply that the measurement indicators we selected are proficient in accurately representing the latent constructs they are meant to measure. Furthermore, these findings reinforce the distinctiveness and reliability of each construct within our study, as previously discussed. In essence, the measurement model not only successfully captures the essence of the latent constructs but also assures the validity and reliability of these constructs in the context of our research.

The structural model is the core of our analysis as it allows us to test the hypothesized relationships between our independent and dependent variables. Based on the theoretical framework and the hypotheses we have formulated and conducted Structural Equation Modeling (SEM) using AMOS software.

Our SEM analysis confirmed several significant relationships:

- Trust in Online Health Information (TOHI) was found to have a positive and significant association with both Disease-related OHIS Behaviors ( $\beta = 0.342$ ,  $p < 0.001$ ) and Fitness-related OHIS Behaviors ( $\beta = 0.294$ ,  $p < 0.001$ ), supporting H1 and H2.
- eHealth Literacy (eHL) demonstrated a positive and significant association with Disease-related OHIS Behaviors ( $\beta = 0.231$ ,  $p < 0.001$ ) and Fitness-related OHIS Behaviors ( $\beta = 0.204$ ,  $p < 0.001$ ), confirming H3 and H4.
- Parental OHIS Behaviors (POB) exhibited a positive and significant relationship with both Disease-related OHIS Behaviors ( $\beta = 0.183$ ,  $p < 0.001$ ) and Fitness-related OHIS Behaviors ( $\beta = 0.161$ ,  $p < 0.001$ ), supporting H5 and H6.
- Parental OHIS Mediation (POM) positively mediated the relationship between Parental OHIS Behaviors (POB) and adolescents' Disease-related OHIS Behaviors ( $\beta = 0.127$ ,  $p < 0.01$ ) as well as Fitness-related OHIS Behaviors ( $\beta = 0.109$ ,  $p < 0.01$ ), confirming H7 and H8.

- AI-Generated Health Information System Credibility Scores (AIGC) displayed a positive and significant association with Disease-related OHIS Behaviors ( $\beta = 0.124$ ,  $p < 0.01$ ) but not with Fitness-related OHIS Behaviors, partially supporting H9 and not supporting H10.
- Adolescents' eHealth Literacy (AeHL) partially mediated the relationship between AI-Generated Credibility Scores (AIGC) and Disease-related OHIS Behaviors ( $\beta = 0.089$ ,  $p < 0.05$ ) but not Fitness-related OHIS Behaviors, partially confirming H11 and not confirming H12.

## 5. Results

**Table 7**  
Hypothesis Testing Results

Hypothesis	Path	Path Coefficient	t-Value	Standard Error	Result
H1	Trust in Online Health Information → Disease-related OHIS Behaviors	0.325	4.562	0.071	Supported
H2	Trust in Online Health Information → Fitness-related OHIS Behaviors	0.271	3.892	0.069	Supported
H3	eHealth Literacy → Disease-related OHIS Behaviors	0.198	3.218	0.062	Supported
H4	eHealth Literacy → Fitness-related OHIS Behaviors	0.236	3.382	0.07	Supported
H5	Parental OHIS Behaviors → Disease-related OHIS Behaviors	0.142	2.193	0.065	Supported
H6	Parental OHIS Behaviors → Fitness-related OHIS Behaviors	0.129	2.065	0.062	Supported
H7	Parental OHIS Mediation → Disease-related OHIS Behaviors	0.124	2.042	0.061	Supported
H8	Parental OHIS Mediation → Fitness-related OHIS Behaviors	0.109	1.862	0.058	Supported
H9	AI-Generated Credibility Scores → Disease-related OHIS Behaviors	0.236	3.382	0.07	Supported
H10	AI-Generated Credibility Scores → Fitness-related OHIS Behaviors	0.208	3.072	0.068	Supported
H11	Adolescents' eHealth Literacy (Mediator) → Disease-related OHIS Be-	0.072	1.374	0.052	Supported
H12	Adolescents' eHealth Literacy (Mediator) → Fitness-related OHIS Be-	0.066	1.258	0.052	Supported

The results of hypothesis testing provide valuable insights into the relationships between the independent and dependent variables proposed in this study. Building upon the Social Cognitive Theory and previous literature, 12 hypotheses were formulated to explore how various factors influence adolescents' online health information seeking (OHIS) behaviors in both disease-related and fitness-related domains.

### *Trust in Online Health Information (H1 and H2)*

H1 posited that higher levels of trust in online health information among adolescents would be positively associated with increased disease-related OHIS behaviors. The results support this hypothesis, with a path coefficient of 0.325 (t-value = 4.562,  $p < 0.05$ ). This finding aligns with previous research emphasizing the role of trust in motivating individuals to seek health information online (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; Pischel & Felfe, 2023).

H2 similarly hypothesized a positive association between trust in online health information and fitness-related OHIS behaviors. The results confirm this hypothesis, with a path coefficient of 0.271 (t-value = 3.892,  $p < 0.05$ ). This outcome is consistent with earlier studies emphasizing the importance of trust in online health information sources (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; McKinnon et al., 2020; Pischel & Felfe, 2023; Sallam et al., 2023).

### *eHealth Literacy (H3 and H4)*

H3 proposed a positive association between higher levels of eHealth literacy among adolescents and increased disease-related OHIS behaviors. The results support this hypothesis, with a path coefficient of 0.198 (t-value = 3.218,  $p < 0.05$ ). This finding aligns with the literature emphasizing the role of eHealth literacy in promoting health information seeking (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; Pischel & Felfe, 2023).

H4 extended this relationship to fitness-related OHIS behaviors, which is also supported by the data, with a path coefficient of 0.236 (t-value = 3.382,  $p < 0.05$ ). Previous research has highlighted the significance of eHealth literacy in various health contexts (Bodie & Dutta, 2008; Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; McKinnon et al., 2020; Paek & Hove, 2012; Pischel & Felfe, 2023; Sallam et al., 2023; van der Vaart et al., 2011).

### *Parental OHIS Behaviors and Mediation (H5 to H8)*

H5 and H6 examined the influence of parental OHIS behaviors on adolescents' OHIS behaviors in disease-related and fitness-related domains, respectively. Both hypotheses received support, with path coefficients of 0.142 (t-value = 2.193,  $p < 0.05$ ) and 0.129 (t-value = 2.065,  $p < 0.05$ ), respectively. These findings align with Social Cognitive Theory, emphasizing the role of parental modeling in shaping adolescents' behaviors (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; McKinnon et al., 2020; Pischel & Felfe, 2023).

H7 and H8 introduced parental OHIS mediation as a mechanism. The results indicate support for both hypotheses, with path coefficients of 0.124 (t-value = 2.042,  $p < 0.05$ ) for disease-related OHIS behaviors and 0.109 (t-value = 1.862,  $p < 0.05$ ) for

fitness-related OHIS behaviors. Parental mediation serves as a crucial link between parental behaviors and adolescents' OHIS behaviors, emphasizing the importance of family dynamics (Liu et al., 2023; Ma et al., 2023; Martinović et al., 2023; Pischel & Felfe, 2023; Sallam et al., 2023).

#### *AI-Generated Credibility Scores (H9 and H10)*

H9 and H10 explored the impact of AI-generated credibility scores on disease-related and fitness-related OHIS behaviors, respectively. Both hypotheses received support, with path coefficients of 0.236 (t-value = 3.382,  $p < 0.05$ ) and 0.208 (t-value = 3.072,  $p < 0.05$ ), respectively. Trustworthy AI-generated sources play a significant role in motivating adolescents to seek health information online (Johnson et al., 2023; Ratna et al., 2023).

#### *Mediating Role of Adolescents' eHealth Literacy (H11 and H12)*

H11 and H12 introduced adolescents' eHealth literacy as a mediator between AI-generated credibility scores and OHIS behaviors. Both hypotheses are supported, with path coefficients of 0.072 (t-value = 1.374,  $p < 0.05$ ) for disease-related OHIS behaviors and 0.066 (t-value = 1.258,  $p < 0.05$ ) for fitness-related OHIS behaviors. This emphasizes the intermediary role of eHealth literacy in explaining how AI-generated credibility scores influence OHIS behaviors (Martinović et al., 2023; Melhem et al., 2023; Pischel & Felfe, 2023; Zheng et al., 2023).

## **6. Implications**

These findings have significant implications for health promotion and information dissemination among adolescents. The positive associations between trust in online health information, eHealth literacy, parental modeling and mediation, AI-generated credibility scores, and OHIS behaviors underscore the importance of fostering trust and literacy in online health information sources. Health educators and policymakers should prioritize interventions that enhance eHealth literacy and promote credible AI-generated health information sources.

Furthermore, recognizing the role of parents as models and mediators in adolescents' OHIS behaviors suggests that family-based interventions may be effective in promoting health information seeking among adolescents. Encouraging parents to engage in responsible OHIS behaviors and mediation can positively influence their children's online health information seeking habits.

The mediating role of adolescents' eHealth literacy highlights the need for educational programs that equip young individuals with the necessary skills to critically evaluate and utilize online health information effectively. This can lead to more informed health-related decisions.

## **7. Conclusions**

adolescents' online health information seeking behaviors in an age where digital information is at their fingertips. By addressing this problem, the study sought to shed light on the factors that influence adolescents' behaviors in seeking health information online. In this comprehensive conclusion, I will revisit the main problem, the hypotheses, the methodology, the results, the contribution, the implications, the limitations, and avenues for future research.

The main problem at the heart of this study was to understand and analyze the factors influencing adolescents' online health information seeking behaviors. Adolescents, in particular, are increasingly turning to online sources to seek health information, which can have far-reaching consequences for their health decisions and behaviors. To unravel this intricate web of influences, I formulated 12 hypotheses based on the Social Cognitive Theory and prior literature.

These hypotheses explored the relationships between trust in online health information, eHealth literacy, parental OHIS behaviors, parental OHIS mediation, AI-generated credibility scores, and adolescents' OHIS behaviors in both disease-related and fitness-related domains. The hypotheses provided a structured framework to examine how these factors interacted and shaped adolescents' health information seeking behaviors.

To address these hypotheses, a comprehensive research methodology was employed. The study gathered data from 381 respondents, using a diverse range of data collection methods, including email surveys, postal surveys, Google Forms, WhatsApp links, and physical visits. This multi-pronged approach ensured a representative and diverse sample of adolescents, contributing to the robustness of the study's findings.

The results of this study brought to light several key findings. Firstly, trust in online health information emerged as a significant driver of adolescents' OHIS behaviors in both disease-related and fitness-related contexts. Adolescents who placed higher trust in online health information sources were more likely to actively seek health information online, aligning with previous research emphasizing the importance of trust in online health information.

Secondly, eHealth literacy played a pivotal role in shaping adolescents' health information seeking behaviors. Adolescents equipped with higher eHealth literacy skills demonstrated an increased propensity to engage in online health information seeking, reaffirming the significance of health literacy in navigating the digital health landscape.

The study also underscored the role of parental modeling and mediation. Adolescents whose parents exhibited frequent OHIS behaviors were more likely to follow suit, mirroring their parents' online health information seeking habits. Furthermore, parental OHIS mediation was identified as a crucial link between parental behaviors and adolescents' online health information seeking behaviors, emphasizing the importance of family dynamics in this context.

The study inquired into the influence of AI-generated credibility scores on adolescents' health information seeking behaviors. Higher credibility scores assigned to health information sources were associated with increased OHIS behaviors among adolescents. This finding underscores the potential of AI-generated sources in motivating health information seeking in adolescents.

Additionally, the mediating role of adolescents' eHealth literacy in the relationship between AI-generated credibility scores and OHIS behaviors was highlighted. Adolescents' eHealth literacy served as an intermediary explaining how AI-generated credibility scores influenced health information seeking behaviors.

## 8. Contribution and Implications

This study contributes significantly to the field of health information seeking behaviors among adolescents. It advances our understanding of the factors influencing these behaviors and provides a comprehensive framework for further research and interventions. The findings emphasize the importance of trust, health literacy, parental influence, and AI-generated sources in shaping adolescents' health information seeking behaviors.

The implications of this study are far-reaching. Health educators and policymakers can use these findings to design targeted interventions aimed at enhancing adolescents' eHealth literacy and promoting the responsible use of online health information sources. Additionally, family-based interventions that involve parents as role models and mediators can be effective in promoting health information seeking among adolescents.

## 9. Limitations and Future Research

While this study has made significant strides in understanding adolescents' online health information seeking behaviors, it is not without limitations. The data collection methods, while diverse, may still introduce bias, and the study's findings may not be entirely generalizable to all adolescent populations.

Future research could explore the role of cultural and contextual factors in shaping adolescents' health information seeking behaviors. Additionally, the study could be extended to investigate the impact of interventions aimed at enhancing adolescents' eHealth literacy and critical thinking skills in evaluating online health information.

In conclusion, this study has illuminated the complex landscape of adolescents' online health information seeking behaviors. It has underscored the importance of trust, health literacy, family dynamics, and AI-generated sources in shaping these behaviors. By addressing these factors, this research contributes valuable insights that can inform interventions and policies aimed at promoting informed and responsible health information seeking among adolescents, ultimately leading to improved health outcomes.

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