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Digital Health Literacy and Verification of Sexual and Reproductive Health Information on TikTok: The Role of Artificial Intelligence Among Young People in Timor-Leste

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I confirm that my research received ethical approval from the Research and Development Ethics Unit of the National Institute of Public Health of Timor-Leste (INSP-TL). The ethics approval reference number is 810/INSPTL-TL/UEPD-AL/VII/2026, dated 17 November 2026. The original ethics declaration was issued in Portuguese, the institutional language used by INSP-TL.

Digital Health Literacy and Verification of Sexual and Reproductive Health Information on TikTok: The Role of Artificial Intelligence Among Young People in Timor-Leste

Abstract

Social media platforms, particularly TikTok, have become increasingly important sources of health information among young people. However, the accuracy of health-related content remains a concern, especially regarding sexual and reproductive health (SRH). The ability to evaluate online information and verify its credibility is therefore an essential component of digital health literacy. The emergence of generative artificial intelligence (AI) tools, such as ChatGPT and Google Gemini, also provides new opportunities for users to seek additional explanations and verify health-related information. Nevertheless, the reliability of AI-generated responses requires critical evaluation. This study aims to examine digital health literacy and the verification of sexual and reproductive health information encountered on TikTok among young people in Timor-Leste, with particular attention to the use of AI tools. An analytical cross-sectional study will be conducted among young people aged 18–24 years who use TikTok in Timor-Leste. The study will target 200 respondents using a non-probability convenience sampling technique. Data will be collected through a structured, self-administered online questionnaire using Google Forms. The questionnaire will assess TikTok exposure to SRH information, trust in health-related content, information verification practices, digital health literacy, and the use of AI tools for health information verification. Data will be analyzed using descriptive and inferential statistics to examine patterns of information verification and relationships among the study variables. The study is expected to provide evidence on how young people evaluate and verify SRH information encountered on TikTok and how AI tools contribute to their information-seeking practices. The findings may support the development of digital health literacy initiatives and promote responsible use of AI for health information among young people in Timor-Leste.

Keywords: Digital Health Literacy; TikTok; Artificial Intelligence; Sexual and Reproductive Health; Health Information Verification; Young People; Timor-Leste.

1. Introduction

Social media has become an important channel through which young people access and exchange health information. Among the available platforms, TikTok has gained attention for its short-form videos, accessible content, and ability to reach large audiences. Users can encounter health-related information through educational videos, personal experiences, testimonials, and recommendations from content creators. Although this format makes health information easier to access, it also creates challenges regarding the accuracy, credibility, and reliability of the information presented. Users may encounter scientifically supported health advice alongside personal opinions and misleading medical claims.

These concerns are particularly relevant to sexual and reproductive health (SRH). Young people need reliable information about contraception, sexually transmitted infections, reproductive health, and preventive health practices to make informed decisions. However, information about these subjects on social media does not always come from qualified healthcare professionals or credible health organizations. Coleman et al. (2024) examined 174 educational TikTok videos about contraception and found differences in information quality between videos produced by healthcare professionals and those created by non-healthcare professionals. Videos produced by healthcare professionals generally received higher scores for authority and accuracy. Their findings demonstrate the importance of evaluating the source and quality of health information available on TikTok.

The ability to evaluate online health information is closely related to digital health literacy. Norman and Skinner (2006) introduced the concept of eHealth literacy, which describes an individual's ability to seek, find, understand, and evaluate health information from electronic sources and apply the knowledge gained to health-related decisions. More recently, Ban et al. (2024) explained that digital health literacy involves several interconnected abilities, including information processing, communication, utilisation, and goal-oriented regulation. These abilities are particularly important in social media environments, where users must assess the credibility of information before accepting or sharing it. Simply accessing health information does not necessarily mean that individuals can determine whether the information is accurate.

One important aspect of digital health literacy is the behavior of verifying information before trusting it. When users encounter health-related content on TikTok, they may accept the information immediately, compare it with other online sources, consult official health websites, or seek advice from healthcare professionals. These different behaviors may influence how individuals understand health information and respond to health-related recommendations. Verification is especially important in sexual and reproductive health because inaccurate information may contribute to misunderstandings about contraception, sexually transmitted infections, and reproductive health practices. Therefore, examining

whether young people verify information from TikTok can provide insight into their ability to evaluate digital health content.

The increasing availability of artificial intelligence (AI) tools has introduced additional opportunities and challenges for health information verification. Generative AI applications, including ChatGPT and Google Gemini, allow users to ask questions and receive explanations in conversational formats. Young people may use these tools to clarify medical terms, obtain additional explanations, or compare information encountered on social media. However, AI-generated responses should not automatically be considered accurate or medically reliable. The World Health Organization (WHO, 2025) has highlighted the need for appropriate governance, human oversight, and careful evaluation of generative AI applications in health. Consequently, understanding how young people use AI to verify health information is an important emerging issue in digital health literacy research.

Although previous studies have examined the quality and accuracy of health information on TikTok, less is known about how young users respond to this information after encountering it. In particular, the relationship between digital health literacy, trust in TikTok health content, information verification behavior, and the use of AI tools requires further investigation. This issue is also relevant in Timor-Leste, where locally generated evidence concerning young people's evaluation of digital sexual and reproductive health information remains limited. Understanding these behaviors may help identify gaps in young people's ability to assess online health information and use digital technologies responsibly.

Therefore, this study aims to examine digital health literacy and the verification of sexual and reproductive health information encountered on TikTok among young people aged 18–24 years in Timor-Leste. Specifically, it investigates their exposure to SRH information on TikTok, their level of trust in such information, the sources they use to verify its credibility, and their use of AI tools for additional information assessment. The study also examines the relationship between digital health literacy and information verification behavior. The findings are expected to contribute to public health research by providing evidence on young people's digital health information practices and supporting the development of more effective digital health literacy initiatives in Timor-Leste.

2. Methods

2.1. Study Design

This study will use an analytical cross-sectional design with a quantitative approach to examine digital health literacy and the verification of sexual and reproductive health (SRH) information encountered on TikTok among young people in Timor-Leste. The study will also

investigate the use of artificial intelligence (AI) tools, particularly ChatGPT and Google Gemini, as additional sources for evaluating health-related information.

Data will be collected through an online, self-administered questionnaire at a single point in time. This design will allow the researchers to describe participants' experiences and information-seeking practices and examine associations between digital health literacy, trust in TikTok health information, verification behavior, and AI use.

2.2. Study Population and Eligibility Criteria

The target population will consist of young people aged 18–24 years who reside in Timor-Leste, actively use TikTok, and have encountered health-related information on the platform.

Participants will be eligible if they meet the following criteria:

1. Aged between 18 and 24 years.
2. Currently residing in Timor-Leste.
3. Actively using TikTok.
4. Have encountered health-related information on TikTok.
5. Willing to participate voluntarily and provide informed consent.

Individuals who do not meet these criteria or submit substantially incomplete questionnaires will be excluded from the final analysis.

2.3. Sample Size and Sampling Technique

The study will target 200 respondents. Participants will be recruited using a non-probability convenience sampling technique. This approach is appropriate for the planned online recruitment process, in which eligible individuals will be invited to participate voluntarily through accessible social media and communication channels.

The recruitment target of 200 respondents is a planned sample size. Its adequacy for the intended statistical analyses will be assessed based on the primary research objectives and expected relationships between the study variables.

Because participants will be recruited through online networks rather than probability-based population sampling, the findings will be interpreted with consideration of potential selection bias and limitations in generalizability.

2.4. Data Collection Instrument

Data will be collected using a structured, self-administered questionnaire developed in Google Forms. The questionnaire will be informed by published literature on digital health literacy, online health information evaluation, social media use, and AI-assisted information seeking.

The questionnaire will contain five sections.

Section A: Sociodemographic Characteristics

This section will collect information about participants' age, gender, educational level, and municipality of residence.

Section B: TikTok Use and Exposure to Health Information

This section will assess the frequency of TikTok use, daily time spent on the platform, and exposure to health-related content. Particular attention will be given to sexual and reproductive health topics, including contraception, sexually transmitted infections, and reproductive health education.

Section C: Trust and Verification of Health Information

This section will examine participants' trust in health information encountered on TikTok and their practices for evaluating its credibility. Questions will assess whether participants immediately accept information, search for confirmation through other sources, consult official health websites, or seek advice from healthcare professionals.

Section D: AI-Assisted Health Information Verification

This section will assess participants' awareness and use of AI tools, including ChatGPT and Google Gemini, when evaluating health information encountered on TikTok. It will examine the frequency and purpose of AI use, trust in AI-generated responses, and whether participants compare AI-generated information with reliable health sources.

Section E: Digital Health Literacy

This section will assess participants' ability to search for, understand, evaluate, and apply digital health information. It will focus on identifying credible sources, recognizing potentially misleading information, comparing information from different sources, and using digital health information to support informed decisions.

The questionnaire will primarily use multiple-choice questions and five-point Likert-scale items, where appropriate. Response options will be designed to capture differences in participants' experiences, attitudes, and verification practices.

2.5. Validity and Reliability

The questionnaire will undergo content review to assess the relevance, clarity, and comprehensibility of its items. Reviewers with relevant expertise in public health, digital health, or research methodology will be invited to evaluate the instrument.

A pilot test will be conducted with individuals who meet similar eligibility criteria but will not be included in the final study sample. Feedback will be used to improve question wording, response options, and questionnaire structure.

For multi-item scales, internal consistency will be assessed using Cronbach's alpha. A coefficient of 0.70 or higher will generally be considered acceptable. The interpretation will also consider the characteristics and purpose of each scale.

2.6. Data Collection Procedure

Data will be collected through an online questionnaire created using Google Forms. The questionnaire link will be distributed through WhatsApp groups and posted on the researcher's personal TikTok account.

The recruitment announcement will briefly explain the study objectives, eligibility criteria, and voluntary nature of participation. Interested individuals will access the questionnaire through the shared link.

Before completing the questionnaire, participants will receive an electronic information statement explaining the purpose of the research, confidentiality measures, potential risks, and their right to decline participation. Electronic informed consent will be obtained before respondents proceed to the main questionnaire.

Screening questions will be used to identify individuals who meet the eligibility criteria. Recruitment will continue until the target of 200 eligible respondents is reached.

After data collection, responses will be reviewed for eligibility, completeness, and consistency. Eligible and sufficiently complete responses will be included in the final dataset.

2.7. Data Analysis

Data will be exported from Google Forms into Microsoft Excel and analyzed using Jamovi or SPSS.

Descriptive statistics will be used to summarize participants' sociodemographic characteristics, TikTok use, exposure to SRH information, trust in health-related content, information verification practices, AI use, and digital health literacy.

Categorical variables will be presented as frequencies and percentages. Continuous variables will be summarized using means and standard deviations or medians and interquartile ranges, depending on their distribution.

Inferential statistical analyses will be conducted to examine associations between the main study variables. Chi-square tests may be used to assess associations between categorical variables, such as digital health literacy categories and information verification behavior. Logistic regression may also be considered to identify factors associated with verification practices, provided that the data and sample size support the analysis.

Statistical significance will be set at $p < 0.05$. All findings will be interpreted as associations rather than causal relationships because of the cross-sectional design.

2.8. Ethical Considerations

Ethical approval will be sought from the appropriate research ethics committee before recruitment and data collection begin. Participation will be voluntary, and electronic informed consent will be obtained from all respondents.

The study will involve adults aged 18–24 years. Participants will not be required to provide their names or other direct personal identifiers. Collected information will be treated confidentially, stored securely, and used exclusively for research purposes.

Given the sensitive nature of sexual and reproductive health topics, participants will be informed that they may skip questions they do not wish to answer or discontinue participation without penalty.

3. Results

3.1. Sociodemographic Characteristics of Participants

A total of 200 participants were included in this illustrative dataset. Most participants were aged 18–20 years (70.0%), while 30.0% were aged 21–24 years. Female participants accounted for 54.0% of the sample. Regarding educational level, most participants had completed secondary education (62.5%), followed by university education (32.5%).

Table 1. Sociodemographic Characteristics of Participants (N = 200)

Characteristics	Frequency (n)	Percentage (%)
Age group		
18–20 years	140	70.0
21–24 years	60	30.0
Gender		
Male	92	46.0
Female	108	54.0
Educational level		
Secondary education	125	62.5
University education	65	32.5
Other	10	5.0
Total	**200**	**100.0**

3.2. TikTok Usage and Exposure to Sexual and Reproductive Health Information

The illustrative findings indicate that 37.5% of participants used TikTok for 3–4 hours daily, while 22.5% reported using the platform for more than four hours. Regarding exposure to sexual and reproductive health (SRH) information, 35.0% encountered this content sometimes, and 32.5% reported encountering it often.

Table 2. TikTok Usage and Exposure to SRH Information (N = 200)

Variables	Frequency (n)	Percentage (%)
Daily TikTok usage		
Less than 1 hour	25	12.5
1–2 hours	55	27.5
3–4 hours	75	37.5
More than 4 hours	45	22.5
Frequency of exposure to SRH content		
Very often	35	17.5
Often	65	32.5
Sometimes	70	35.0
Rarely	30	15.0
Types of SRH content encountered		
Contraception and family planning	115	57.5
Sexually transmitted infections	95	47.5
Menstrual and reproductive health	120	60.0
Pregnancy-related information	85	42.5

Note: Multiple responses were permitted for types of SRH content; therefore, percentages do not total 100%.

3.3. Trust and Verification of Health Information on TikTok

The illustrative findings show that 38.0% of participants immediately trusted health information encountered on TikTok. Meanwhile, 21.0% reported trusting the information but sometimes checking its accuracy. Other participants used external sources, including Google, official health websites, healthcare professionals, and artificial intelligence applications, to verify health-related information.

Table 3. Trust and Verification Behavior Regarding Health Information on TikTok (N = 200)

Verification behavior	Frequency (n)	Percentage (%)
Immediately trust information	76	38.0
Trust information but sometimes verify it	42	21.0
Search for additional information through Google	35	17.5

Verify through official health websites	16	8.0
Consult healthcare professionals	12	6.0
Use AI tools for additional verification	15	7.5
Do not usually verify information	4	2.0
Total	**200**	**100.0**

3.4. Use of Artificial Intelligence for Health Information Verification

Most participants (77.5%) reported that they had never used artificial intelligence tools to obtain health information. Only 22.5% reported previous use of AI for this purpose. Among participants who had used AI, ChatGPT was the most frequently reported application (66.7%), followed by Google Gemini (44.4%).

Table 4. Use of AI Tools for Health Information Verification (N = 200)

AI-related variables	Frequency (n)	Percentage (%)
Ever used AI for health information (N = 200)		
Yes	45	22.5
No	155	77.5
AI applications used (n = 45)		
ChatGPT	30	66.7
Google Gemini	20	44.4
Microsoft Copilot	8	17.8
DeepSeek	7	15.6
Verification practices among AI users (n = 45)		
Compared AI responses with official sources	15	33.3
Used AI mainly for additional explanations	22	48.9
Relied mainly on AI-generated responses	8	17.8

Note: Multiple responses were permitted for AI applications used. Percentages for AI applications are calculated using 45 AI users as the denominator.

3.5. Digital Health Literacy Among Participants

Participants' digital health literacy was assessed through their reported ability to identify reliable online health sources, evaluate information credibility, recognize misleading content, compare information from different sources, and assess AI-generated health information.

Table 5. Digital Health Literacy Among Participants (N = 200)

Digital health literacy indicators	Mean	Standard deviation
Identifying reliable online health sources	3.42	0.91
Evaluating the credibility of health information	3.28	0.94
Recognizing misleading health information	3.15	1.02

Comparing information from different sources	3.36	0.89
Evaluating AI-generated health information	3.02	1.08
Applying reliable information to health decisions	3.48	0.87

Note: Scores are hypothetical and presented on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

3.6. Association Between Digital Health Literacy and Information Verification Behavior

The final analysis will examine whether digital health literacy, trust in TikTok health information, AI-assisted verification, and frequency of TikTok use are associated with health information verification behavior. Inferential statistical results will be reported after analysis of the actual participant dataset.

Table 6. Association Between Study Variables and Health Information Verification Behavior

Independent variables	Statistical test	Test statistic	p-value
Digital health literacy	Chi-square	Pending	Pending
Trust in TikTok health information	Chi-square	Pending	Pending
AI-assisted verification	Chi-square	Pending	Pending
Frequency of TikTok use	Chi-square	Pending	Pending

Note: Statistical results must be calculated using the actual participant dataset. No inferential findings are reported in this illustrative table.

4. Discussion

4.1. TikTok as a Source of Sexual and Reproductive Health Information

The illustrative findings indicate that TikTok was frequently used by participants, with most reporting daily use of at least one hour. Participants also reported exposure to various types of sexual and reproductive health (SRH) information, particularly menstrual and reproductive health, contraception, and sexually transmitted infections. These patterns suggest that TikTok may represent an important digital environment through which young people encounter health-related information.

However, frequent exposure does not necessarily indicate that users receive accurate or complete health information. Previous research has identified differences in the quality and reliability of contraceptive information available on TikTok. Coleman et al. (2024) found that educational contraception videos were generally understandable, but their actionability varied. Healthcare professionals produced content with higher scores in several information-quality domains than non-healthcare creators. Other research has also identified concerns about the reliability of contraceptive information on TikTok, highlighting the potential exposure of users to misleading health messages.

These findings emphasize the importance of assessing not only how frequently young people encounter SRH information but also their ability to evaluate its accuracy, credibility, and relevance. In Timor-Leste, this issue deserves attention because social media may provide an accessible source of health information for young people, while access to reliable and understandable SRH education may vary across communities.

4.2. Trust and Verification of Health Information

The illustrative results show that 38.0% of participants immediately trusted health information encountered on TikTok, while 21.0% trusted the information but sometimes verified it. Only a proportion reported using external sources, such as Google, official health websites, healthcare professionals, or AI tools.

This pattern raises an important public health concern. Information presented in short videos may appear convincing because of visual communication, personal experiences, and confident explanations. However, these characteristics do not guarantee scientific accuracy. Users who accept health information without checking its source may have difficulty distinguishing evidence-based recommendations from personal opinions or misleading claims.

Verification is therefore an important component of digital health literacy. Norman and Skinner (2006) described eHealth literacy as the ability to seek, find, understand, and evaluate health information from electronic sources and apply the knowledge to address health problems. This framework remains relevant to social media environments because users need more than basic internet access. They also need the ability to assess the credibility of digital information.

For SRH information, verification is particularly important because inaccurate information about contraception, sexually transmitted infections, pregnancy, and reproductive health may influence personal health decisions. Promoting the use of credible sources, including official health institutions and qualified healthcare professionals, may help reduce the risks associated with unverified online information.

4.3. Artificial Intelligence Use for Health Information

One notable pattern in the illustrative findings is that 77.5% of participants had never used AI tools to obtain health information. Only 22.5% reported previous use for this purpose. Among those who had used AI, ChatGPT was the most frequently reported application, followed by Google Gemini.

This finding suggests that general familiarity with AI applications should not automatically be interpreted as their adoption for health-related purposes. Young people may use AI for education, writing, or general information but may be less familiar with its application to health information seeking. Concerns about accuracy, privacy, and the reliability of AI-generated responses may also influence adoption.

A cross-sectional study published in the *Journal of Medical Internet Research* found that traditional online sources remained important for health information seeking. The study also reported that some users cross-checked information obtained from large language model-based chatbots, while others followed the advice without additional verification (Online

Health Information–Seeking in the Era of Large Language Models, 2025). These findings highlight the need to examine how users assess AI-generated health information rather than measuring AI use alone.

Generative AI can provide accessible explanations of complex health topics. Nevertheless, its responses may contain inaccurate or incomplete information. Research by Lewandowsky and colleagues (2025) also discussed how personalized AI-generated responses may reinforce confirmation bias during health information seeking. Therefore, AI applications should be treated as supplementary information tools rather than replacements for official health guidance or professional consultation.

In the context of Timor-Leste, digital health education could introduce young people to responsible AI use. Such education should emphasize checking AI-generated information against reliable sources, recognizing the limitations of AI systems, and seeking professional advice for important health decisions.

4.4. Digital Health Literacy and Verification Behavior

Digital health literacy is an important factor in understanding how young people interact with health information on social media. The illustrative results show variation across the assessed digital health literacy indicators. Participants reported relatively higher scores for applying reliable information to health decisions and identifying credible online health sources, while evaluating AI-generated health information received the lowest mean score.

This difference may indicate that evaluating AI-generated health information requires additional competencies beyond conventional online information evaluation. Users need to understand that AI-generated responses may sound authoritative even when the information is incomplete or incorrect.

The eHealth literacy framework developed by Norman and Skinner (2006) provides a theoretical basis for understanding these competencies. It emphasizes the combination of traditional literacy, health literacy, information literacy, scientific literacy, media literacy, and computer literacy. In contemporary digital environments, these skills are increasingly relevant because health information is distributed through social media platforms and AI applications.

However, the relationship between digital health literacy and verification behavior cannot be established from descriptive statistics alone. Further statistical analysis using actual participant data is required to determine whether participants with higher digital health literacy are more likely to verify SRH information encountered on TikTok.

4.5. Public Health Implications for Timor-Leste

The findings highlight several potential implications for digital health promotion among young people in Timor-Leste. First, public health institutions should strengthen the availability of accessible and scientifically accurate SRH information on social media platforms. Healthcare professionals and public health organizations could use TikTok to communicate evidence-based information in formats that are understandable to younger audiences.

Second, digital health literacy education should include practical skills for identifying credible sources, comparing health information, recognizing misleading claims, and checking information generated by AI applications. These skills may help young people make more informed decisions when encountering SRH information online.

Third, educational interventions should not focus exclusively on increasing AI adoption. Instead, they should promote responsible and critical use of AI tools. Young people should understand when AI can provide general explanations and when they need to consult qualified healthcare professionals.

These strategies may support a safer digital information environment and strengthen young people's capacity to make informed SRH decisions.

4.6. Limitations

Several limitations should be considered when interpreting the proposed study. First, the cross-sectional design can identify associations between variables but cannot establish causal relationships. Second, convenience sampling through WhatsApp groups and the researcher's TikTok account may introduce selection bias and limit the generalizability of the findings to all young people in Timor-Leste.

Third, the online self-administered questionnaire may be affected by recall bias and social desirability bias. Participants may not accurately remember their previous information-seeking and verification practices. Fourth, the study relies on self-reported digital health literacy rather than direct performance-based assessments of participants' ability to evaluate health information.

Finally, the study focuses on young TikTok users who have encountered SRH information. Therefore, its findings may not represent young people who do not use TikTok or who have not encountered SRH content on the platform. Future research could use qualitative interviews or longitudinal designs to explore how young people evaluate and apply digital SRH information in their everyday lives.

5. Conclusion

This study highlights the importance of digital health literacy and information verification among young people who encounter sexual and reproductive health (SRH) information on TikTok in Timor-Leste. The illustrative findings suggest that although TikTok provides opportunities for young people to access SRH information, exposure to digital health content does not necessarily ensure that users evaluate its accuracy before accepting it.

A considerable proportion of participants reported trusting health information encountered on TikTok, while fewer reported consistently verifying information through reliable sources. In addition, most participants had never used artificial intelligence tools to obtain health information. Among those who had used AI, ChatGPT was the most frequently reported application.

These findings emphasize the need to strengthen digital health literacy, particularly the ability to evaluate online health information, identify credible sources, and verify AI-generated

responses. Public health institutions, educational organizations, and healthcare professionals in Timor-Leste should consider developing accessible digital health education initiatives that promote responsible social media use and critical evaluation of SRH information.

Overall, improving digital health literacy may help young people make more informed decisions when encountering SRH information online. Future research using actual participant data and more diverse sampling strategies is necessary to examine the relationship between digital health literacy, AI use, and health information verification behavior in greater depth.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- FOLHADEINFORMAOAOPARTICIPANTEECONSENTIMENTOINFORMADO.pdf
- DECLARAODEAPROVAOTICAReinaldo.pdf