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PROCURA DE INFORMAÇÃO DIGITAL SOBRE SAÚDE SEXUAL, LITERACIA DIGITAL E COMPORTAMENTOS DE RISCO ENTRE ESTUDANTES UNIVERSITÁRIOS BRASILEIROS

ONLINE SEXUAL HEALTH INFORMATION SEEKING, DIGITAL LITERACY, AND RISK BEHAVIORS AMONG BRAZILIAN UNIVERSITY STUDENTS

BÚSQUEDA DE INFORMACIÓN DIGITAL SOBRE SALUD SEXUAL, ALFABETIZACIÓN DIGITAL Y COMPORTAMIENTOS DE RIESGO ENTRE ESTUDIANTES UNIVERSITARIOS BRASILEÑOS

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RESUMO

Introdução: As redes sociais são hoje uma fonte central de informação sobre saúde sexual e mental para jovens adultos, mas o impacto desta exposição nas suas práticas e no bem-estar permanece pouco claro. É necessário compreender de que forma a procura de informação sexual *online*, a literacia digital em saúde e o uso problemático das redes sociais se relacionam com o conhecimento, as atitudes e os comportamentos sexuais desta população.
Objetivo: Analisar como a exposição a conteúdos digitais relacionados com saúde sexual e mental influencia o conhecimento, atitudes e comportamentos de jovens adultos universitários.
Métodos: Realizou-se um estudo transversal *online* com 65 estudantes universitários brasileiros, com idades entre 18 e 30 anos. O questionário incluiu medidas de procura de informação sexual na internet e nas redes sociais, literacia digital em saúde (eHEALS), literacia em saúde mental (MHLq), uso problemático das redes sociais (SMDS), sintomas de depressão, ansiedade e stress (DASS-21) e comportamentos sexuais de risco. Os dados foram analisados com estatística descritiva, testes de associação (qui-quadrado, correlações) e modelos de regressão logística e linear multivariada, considerando variáveis sociodemográficas relevantes.
Resultados: Entre os participantes, a maioria referiu já ter procurado informação sobre sexo na internet, mas essa procura não se associou a menor probabilidade de comportamentos sexuais de risco. Também não se observaram associações significativas entre a procura de informação sexual online, a literacia digital em saúde ou a perceção de capacidade para avaliar a fiabilidade da informação e os comportamentos de risco. Em contraste, a idade mais elevada e a pertença a minorias sexuais estiveram associadas a maior probabilidade de pelo menos um comportamento sexual de risco. O uso problemático das redes sociais apresentou uma associação consistente com níveis mais elevados de sintomas de depressão, ansiedade e stress, sem relação clara com os comportamentos sexuais.
Conclusão: Os resultados sugerem que, nesta amostra de estudantes universitários brasileiros, a procura de informação sexual *online* e a perceção de maior literacia digital em saúde não se associam de forma clara a práticas sexuais mais seguras. Fatores sociodemográficos, como a idade e a pertença a minorias sexuais, mostraram-se mais relevantes para explicar os comportamentos de risco, enquanto o uso problemático das redes sociais se destacou como um importante marcador de maior sofrimento psicológico.

Palavras-chave: redes sociais; saúde sexual; literacia digital em saúde; bem-estar mental; jovens adultos

ABSTRACT

Introduction: Social media are a central source of sexual and mental health information for young adults, yet the impact of this exposure on their practices and well-being remains unclear. It is necessary to understand how online sexual information seeking, digital health literacy, and problematic social media use relate to the knowledge, attitudes, and sexual behaviors of this population.
Objective: Analyze how exposure to digital content related to sexual and mental health influences the knowledge, attitudes, and behaviors of young adult college students.
Methods: A cross-sectional online survey was conducted with 65 Brazilian university students aged 18–30 years. The questionnaire assessed online sexual information seeking, digital health literacy (eHEALS), mental health literacy (MHLq), problematic social media use (SMDS), symptoms of depression, anxiety, and stress (DASS-21), and risky sexual behaviors. Data were analyzed using descriptive statistics, chi-square tests, and correlations, and multivariable logistic and linear regression models, controlling for relevant sociodemographic variables.
Results: Among the participants, most reported having searched for sexual information online, but this behavior was not associated with a lower likelihood of risky sexual practices. No significant associations were found between online sexual information seeking, digital health literacy, or perceived ability to evaluate online information and sexual risk behaviors. In contrast, older age and sexual minority status were associated with a higher probability of reporting at least one risky sexual behavior. Problematic social media use showed a consistent association with higher levels of depression, anxiety, and stress symptoms, with no clear link to sexual risk behaviors.
Conclusion: In this sample of Brazilian university students, online sexual information seeking and higher perceived digital health literacy were not clearly associated with safer sexual practices. Sociodemographic factors such as age and sexual minority status played a more prominent role in explaining sexual risk, whereas problematic social media use emerged as an important marker of greater psychological distress.

Keywords: social media; sexual health; digital health literacy; mental well-being; young adults

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RESUMEN

Introducción: Las redes sociales constituyen una fuente central de información sobre salud sexual y mental para los adultos jóvenes, pero el impacto de esta exposición en sus prácticas y bienestar sigue siendo poco claro. Es necesario comprender cómo la búsqueda de información sexual en línea, la alfabetización digital en salud y el uso problemático de las redes sociales se relacionan con el conocimiento, las actitudes y las conductas sexuales de esta población.
Objetivo: Analizar cómo la exposición a contenidos digitales relacionados con la salud sexual y mental influye en los conocimientos, actitudes y comportamientos de los jóvenes adultos universitarios.
Métodos: Se realizó una encuesta transversal en línea con 65 estudiantes universitarios brasileños de entre 18 y 30 años. El cuestionario evaluó la búsqueda de información sexual en internet y redes sociales, la alfabetización digital en salud (eHEALS), la alfabetización en salud mental (MHLq), el uso problemático de las redes sociales (SMDS), los síntomas de depresión, ansiedad y estrés (DASS-21) y las conductas sexuales de riesgo. Los datos se analizaron mediante estadísticos descriptivos, pruebas de chi-cuadrado y correlaciones, y modelos de regresión logística y lineal multivariable, controlando variables sociodemográficas pertinentes.
Resultados: Entre los participantes, la mayoría informó haber buscado información sobre sexo en internet, pero dicha búsqueda no se asoció con una menor probabilidad de conductas sexuales de riesgo. Tampoco se encontraron asociaciones significativas entre la búsqueda de información sexual en línea, la alfabetización digital en salud o la percepción de capacidad para evaluar la fiabilidad de la información y las conductas de riesgo. En cambio, una mayor edad y la pertenencia a minorías sexuales se asociaron con una mayor probabilidad de al menos una conducta sexual de riesgo. El uso problemático de las redes sociales mostró una asociación consistente con niveles más elevados de síntomas de depresión, ansiedad y estrés, sin una relación clara con las conductas sexuales de riesgo.
Conclusión: En esta muestra de estudiantes universitarios brasileños, la búsqueda de información sexual en línea y una mayor alfabetización digital percibida en salud no se asociaron claramente con prácticas sexuales más seguras. Los factores sociodemográficos, como la edad y la pertenencia a minorías sexuales, fueron más relevantes para explicar el riesgo sexual, mientras que el uso problemático de las redes sociales se destacó como un marcador importante de mayor malestar psicológico.

Palabras clave: redes sociales; salud sexual; alfabetización digital en materia de salud; bienestar mental; adultos jóvenes

INTRODUCTION

The exponential growth in the use of social media and digital platforms among young adults has significantly impacted the way this audience accesses information about sexual and mental health (Döring & Conde, 2021; Vandenbosch & Eggermont, 2013). The internet, initially conceived as a means of democratic dissemination of knowledge, has evolved into a hybrid environment where educational content coexists alongside misinformation, ideologies, and commercial narratives. In this scenario, it is essential to understand how exposure to such content influences young people's sexual behavior, mental health, and critical thinking skills (Livingstone et al., 2018). However, these environments can bridge access gaps and reduce stigma. Still, they can also expose users to uneven information quality and persuasive signals that may shape health decisions and well-being (Swire-Thompson & Lazer, 2020; Sylvia Chou et al., 2020). Against this backdrop, our project targets university students and young adults who actively use social media for sexual and mental-health topics, a population explicitly motivated by the need to assess information quality and misinformation risks, with the objective of analyzing how exposure to digital content related to sexual and mental health influences the knowledge, attitudes, and behaviors of young adult college students.

1. THEORETICAL FRAMEWORK

Social media platforms have become the primary source of sexual health information for young adults, simultaneously bridging access gaps while exposing users to variable content quality (Döring & Conde, 2021; Lameiras-Fernández et al., 2021). This dual nature frames two complementary theoretical perspectives relevant to the present study.

First, Information Processing Models (Petty & Cacioppo, 1986) suggest users apply heuristic cues (source credentials, engagement metrics) and systematic evaluation when judging online health content credibility, particularly under time pressure, characteristics of social media scrolling (Corradini, 2024). Heuristic processing predominates when users seek rapid sexual health answers, potentially amplifying misinformation effects on behavioral intentions. This model predicts that perceived credibility influences engagement with online sexual content, a proximal mechanism preceding health behavior.

Second, Health Literacy Frameworks emphasize individuals' capacity to find, understand, and apply digital health information (Norman & Skinner, 2006). The eHealth Literacy Scale (eHEALS) specifically measures perceived skills in navigating online health resources

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(Barros et al., 2022). Low digital health literacy correlates with vulnerability to unreliable sexual health content and risky practices, while higher literacy predicts protective behaviors like condom use and partner testing (Yonker et al., 2015).

Finally, the Problematic Social Media Use literature establishes links between addictive patterns, mental health symptoms, and impaired decision-making (Twenge et al., 2018; Keles et al., 2020). The Social Media Disorder Scale (SMDS) captures these patterns, which may exacerbate vulnerability to health misinformation through reduced critical appraisal capacity (Boer et al., 2022).

These frameworks converge on five testable hypotheses directly mapping to the study's variables and analyses: (H1) online sexual information seeking associates with safer sexual practices; (H2) online sexual information seeking predicts higher digital health literacy; (H3) lower perceived ability to evaluate online health information predicts greater sexual risk; (H4) digital content effects on sexual risk vary by sociodemographic characteristics; (H5) problematic social media use correlates with misinformation vulnerability and sexual risk.

This study addresses three empirical gaps: (1) quantitative focus on credibility appraisals rather than mere exposure among young adults (Kaňková et al., 2025); (2) disaggregated analysis beyond adolescent populations (Shannon et al., 2022); and (3) integration of problematic use with sexual health literacy deficits (Stimpson et al., 2025). These hypotheses test whether social media functions primarily as a health education tool or a misinformation vector among Brazilian university students.

2. METHODS

This section describes the study design, participants, data collection procedures, instruments, and analytical strategies used to examine the relationships between social media use, engagement with sexual-health information, digital and mental health literacy, and mental well-being among young adults.

2.1 Study design and preregistration

We conducted a cross-sectional survey as the quantitative arm of a larger mixed-methods project on sexual and mental-health–related social-media use among university students and young adults. The protocol specifies an online questionnaire using validated instruments and recruitment via university social networks. The target sample was ~100–150 participants aged 18–30 years, living in Brazil, consistent with the approved project documents. The final sample comprised 65 participants due to lower-than-expected recruitment during the data collection period (September 2025), coinciding with university examination season, when students prioritize academic assessments over research participation. Despite intensive recruitment through multiple student-focused social media channels and snowball sampling, this period of high academic pressure significantly reduced response rates among the target population.

2.2 Participants and recruitment

Participants were eligible if they met the following inclusion criteria: enrolled in undergraduate studies at Brazilian institutions, aged between 18 and 30 years, used social media to access information related to sexual and/or mental health, and demonstrated comprehension of Portuguese. Participants not using social media for health-related information or presenting cognitive or linguistic barriers that impeded understanding of the study materials were excluded. For sampling and recruitment, a combination of snowball and convenience sampling was employed, primarily through student-focused social media channels. Recruitment involved the dissemination of posts and invitations containing a link to the survey. Interested individuals accessed an online form with informed consent and, upon acceptance, proceeded to the questionnaire.

2.3 Hypotheses

This study was guided by five a priori hypotheses. First, it was hypothesized that young adults who more frequently seek sexual-health information on the internet and social media would show a lower likelihood of engaging in risky sexual behaviors (H1). Second, it was expected that participants who search for sexual-health information online would report higher levels of digital health literacy than those who do not (H2). Third, lower perceived ability to distinguish reliable online health information was hypothesized to be associated with a greater probability of risky sexual behaviors (H3). Fourth, the impact of exposure to digital sexual and mental-health content on risky sexual behaviors was expected to vary as a function of sociodemographic characteristics, particularly age, gender, and field of study (H4). Finally, it was hypothesized that higher levels of problematic social media use would be associated with greater vulnerability to health misinformation and more frequent engagement in risky sexual behaviors (H5).

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2.4 Measures

All self-report measures were administered in Brazilian Portuguese. We used the following instruments: 1) DASS-21, Brazilian Portuguese version, for which previous studies support its validity and latent structure in Brazilian samples (Vignola & Tucci, 2014); 2) Brazilian version of the *Youth Risk Behavior Survey* (YRBS) sexual-behavior items, adapted to assess sexual risk and protective practices (e.g., condom use, multiple partners) (Guedes & Lopes, 2010) Brazilian version of the *Mental Health Literacy Questionnaire* for Young Adults (MHLq), for which recent work provides psychometric evidence in Brazilian samples (Moreira et al., 2025); 4) eHEALS, which assesses perceived digital health literacy (Barros et al., 2022); and 5) *Social Media Disorder Scale* (SMDS), a 9-item measure of problematic social media use with evidence of validity in adolescents and young adults (Boer et al., 2022). Because a fully standardized Brazilian short form of some instruments is not yet available, we conducted a 10-participant cognitive pretest to ensure clarity and cultural adequacy before complete data collection. Sociodemographic and social-media variables (e.g., age, gender, sexual orientation, race/ethnicity, religion, socioeconomic status, field of study, and main platforms used) were also collected.

For inferential analyses, gender was recoded into a binary variable ("man": cis and trans men; "woman": cis and trans women). Participants who identified as non-binary, another gender, did not know or preferred not to answer were included only in descriptive analyses due to the small number of cases in these groups.

2.5 Procedure and data collection

Data was collected online (EUSurvey®), during September 2025, voluntarily and anonymously, with an estimated completion time of 15–20 minutes. The link was disseminated via student social networks. After consent, participants complete the survey; optional contact information is stored separately for any follow-up.

2.6 Statistical analysis

All analyses were conducted using Jamovi. Distributions and potential outliers were first inspected. When more than 5% of data were missing, and the missingness was judged to be at random, multiple imputation was applied, and the proportion of imputed values was reported. All instruments have been previously validated in Brazilian samples, with evidence of adequate reliability and construct validity, as indicated in the cited adaptation studies. In the present study, these measures were used as recommended by the original authors, without additional factor-analytic refinement. In the descriptive analyses, means, standard deviations, proportions, and correlations among the main constructs were reported. All models were adjusted for age, gender, time spent on social media, and MHLq scores. The secondary models assessed the association between credibility–trust and mental well-being (DASS-21).

2.7 Data management and quality assurance

The survey restricts submissions to one per user (independent of accounts) and includes attention checks and logic validation. IP addresses were not stored. Data were exported onto an encrypted drive with limited access for the research team. Any contact emails (if collected for follow-up) were stored in a separate file and not combined with survey data.

2.8 Ethics

The study was conducted in accordance with the procedures approved by the Research Ethics Committee (REC) of EEUSP (Approval nº 7.776.474) on August 19th 2025. The REC approval describes the project as a mixed-methods protocol comprising a cross-sectional survey of 150 students aged 18–30 years, using the DASS-21, an adapted version of the YRBS, eHEALS, MHLq, and SMDS, and specifies eligibility criteria, recruitment via social networks, and the main analytic strategies. The Committee requested minor clarifications to the informed consent form (TCLE), such as details on the interview format and the indemnification clause, which were incorporated into the final version of the TCLE. Informed consent was obtained electronically before participation, and the study was designed to minimise risk, provide contact information for psychological support services, and ensure strict confidentiality of participant data.

3. RESULTS

This section presents the sample's sociodemographic characteristics and the main findings regarding online sexual information seeking, digital health literacy, mental health, and risky sexual behaviors.

Sociodemographic characterization

Sixty-five young adults aged 18–30 years (M = 22.5; SD = 3.78) participated in the study. Most identified as cis women, with smaller proportions identifying as cis or trans men, intergender, or other/not reported. The majority identified as heterosexual, followed by bisexual and homosexual participants, with a small proportion indicating other orientations or preferring not to answer. Most participants self-identified as White, with Brown and Black participants representing smaller proportions, and a few Indigenous

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participants. There was a relatively balanced distribution among participants with no religion, evangelicals, and Catholics, with a minority reporting other religions or no response. Most participants were single, without children, lived with their nuclear families in their own homes, and relied on financial support from others; about half were unemployed. Geographically, participants were mainly concentrated in the Southeast region of Brazil, with smaller proportions in the Midwest, South, and North. Academically, most were enrolled in Nursing, followed by Psychology and Biomedicine, with others distributed across various programs; the majority were studying in public institutions (Table 1).

Table 1 – Sociodemographic characteristics of the sample (N = 65)

Variable	Categories	n	%
Age (years)	M = 22,5; DP = 3,78; Min = 18; Max = 30	65	—
Gender	Cisgender man	16	22,5
	Trans man	2	2,8
	Intergender	2	2,8
	Cisgender woman	45	63,4
	Other/Don't know/No response	6	8,4
Sexual orientation	Straight	38	56,7
	Bisexual	16	23,9
	Homosexual	7	10,4
	Other/No response	6	9,0
Race/skin color	White	40	58,0
	Brown	19	27,5
	Black	8	11,6
	Indigenous	2	2,9
	Yellow	0	0,0
Religion	No religion	23	32,4
	Evangelical	21	29,6
	Catholic	16	22,5
	Other/No response	11	15,4
Marital status	Single	53	77,9
	Common-law marriage	10	14,7
	Married	5	7,4
Children	0	61	93,8
	1	1	1,5
	2	2	3,1
	≥ 3	1	1,5
Course	Nursing	39	60,0
	Psychology	7	10,8
	Biomedical	4	6,2
	Other/No response	15	22,7

Note: The category "Other/No response" in sexual orientation includes participants who identified themselves as asexual or pansexual, as well as those who preferred not to answer the question. In religion, "Other/No response" includes Afro-Brazilian religions, Spiritism, and other minority denominations. In the Course variable, "Other/No response" corresponds to courses not related to health (e.g., Biological Sciences, Social Sciences, Economics, Physics, Literature, Education, Chemistry, Integrative and Complementary Therapies, among others) and cases in which participants chose not to respond. When the aggregate category "Healthcare field" is indicated, it includes Nursing, Psychology, Biomedicine, Pharmacy, Speech Therapy, and Integrative and Complementary Therapies.

Searching for sexual information online and risky sexual behaviors (H1)

The first hypothesis (H1) was based on the premise that greater exposure to content about sexual and mental health on social media could be associated with safer sexual practices, i.e., a lower probability of engaging in risky sexual behavior. To test this hypothesis, we used the dichotomous item "Have you ever searched for information about sex on the internet or social media?" (Yes/No), used as an indicator of online sexual information seeking, and an index of risky sexual behaviors, dichotomized into the absence versus the presence of at least one risky behavior. The relationship between these variables was analyzed using contingency tables and the chi-square test of independence. Among sexually active participants (N = 51), 62.7% engaged in at least one risky sexual behavior. It was observed that 37.5% of young people who reported never having searched for information about sex on the internet/social networks engaged in risky behaviors, compared to 67.4% of those who had searched for this type of information. However, the association between searching for sexual information online and risky sexual behaviors did not reach statistical significance ($\chi^2(1) = 2.59$; $p = 0.108$), making it impossible to confirm the hypothesis that consuming content about sexuality on social media is associated with greater adoption of safe sexual behaviors (Table 2).

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Table 2 - Contingency Tables

Search for information sexual online		Risky sexual behaviors 1	0	Total
0	Observed	3	5	8
	% online	37,50%	62,50%	100,00%
1	Observed	29	14	43
	% online	67,40%	32,60%	100,00%
Total	Observed	32	19	51
	% online	62,70%	37,30%	100,00%

Note. "Searching for sexual information online" refers to the item "Have you ever searched for information about sex on the internet or social media?" (0 = No; 1 = Yes). "Risky sexual behaviors" corresponds to a dichotomous index (0 = absence; 1 = presence of at least one risky behavior).

Searching for sexual information online and digital literacy in health (H2)

The second hypothesis (H2) proposed that young adults who seek information about sex on the internet and social media would possess higher levels of digital health literacy, as they are more likely to be exposed to health content and specialized online resources. In this context, digital health literacy was defined as the perceived ability to locate, understand, and use health information in a digital environment. Although H2 was initially formulated in terms of 'frequent consumption of digital health content', the questionnaire included only a dichotomous item on searching for sexual information online ('Have you ever searched for information about sex on the internet or social media?' – Yes/No). Therefore, the hypothesis was operationalized as the association between having searched for sexual information online (Yes vs. No) and digital health literacy, measured by the total eHEALS score. An independent-samples t test was used to compare digital health literacy between groups, and results are presented in Table 3. However, this difference was not statistically significant, $t(63) \approx 1.38$, $p = 0.172$, $d \approx 0.40$, and therefore did not confirm the hypothesis that digital health content consumption correlates with higher digital health literacy. Consequently, the data do not support H2, although the trend indicates a potential higher digital literacy among those who have previously sought sexual information online.

Table 3 - Digital literacy in health (eHEALS, total score) as a function of searching for sexual information online

	Searching for sexual information online	N	Mean	Median	Standard deviation	Standard error
Digital health literacy (eHEALS – total score)	Never searched for information about sex on the internet/social media	16	22	24,5	7,6	1,9
	Have you ever searched for information about sex on the internet/social media?	49	24,1	25	4,14	0,591

Note: "Searching for sexual information online" corresponds to the item "Have you ever searched for information about sex on the internet or social media?" (0 = No; 1 = Yes). "Digital health literacy" was assessed using the eHEALS, using the total score. M = mean; SD = standard deviation.

Perceived ability to evaluate online health information and risky sexual behaviors (H3)

Vulnerability to online misinformation was initially conceived as a specific construct; in the absence of a dedicated scale, it was operationalized using item 3 of the eHEALS ('I know how to distinguish reliable online health information'). Lower scores on this item were interpreted as indicating lower perceived ability and, consequently, greater vulnerability to misinformation. Risky sexual behaviors were aggregated into a dichotomous index (0 = absence; 1 = presence of at least one risky behavior), based on the number of sexual partners and alcohol or substance use before or during sex. The association between perceived ability to distinguish reliable online health information (eHEALS item 3) and the presence of risky sexual behaviors was examined using binary logistic regression. The model showed very low explanatory power, and the predictor was not statistically significant (see Table 4). Thus, no evidence was found that a lower perceived ability to assess the reliability of online health information is associated with a higher probability of risky sexual behaviors, not supporting hypothesis H3.

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Table 4 - Coefficients of the logistic regression model for risky sexual behaviors

		95% Confidence Interval				95% Confidence Interval		
Predictor	**Estimates**	**Lower limit**	**Superior limit**	**Standard error**	***p***	**Odds Ratio**	**Superior limit**	**Standard error**
Interception	0,857	-1,072	2,785	0,984	0,384	2,356	0,342	16,21
Perceived ability to distinguish reliable information online	-0,252	-0,818	0,315	0,289	0,384	0,778	0,441	1,37

Note: Estimates represent the logarithm of the odds of "no risky sexual behaviors (0)" vs. "presence of at least one risky sexual behavior (1)." The predictor "Perceived ability to distinguish reliable online health information" was operationalized through item 3 of the eHEALS: "I know how to distinguish reliable online health information".

Impact of digital content and sociodemographic characteristics on risky sexual behaviors (H4)

The fourth hypothesis (H4) proposed that the impact of digital content on sexual and mental health would vary according to sociodemographic characteristics, namely age, gender, and level of education. To explore this dimension, in the field of sexual health, we analyzed whether the association between self-reported exposure to digital content on sexuality and the presence of risky sexual behaviors changed according to sociodemographic variables. To this end, a binary logistic regression model was adjusted with the outcome "presence of at least one risky sexual behavior" (0 = absence; 1 = presence of ≥ 1 risky behavior). Predictors included searching for sexual information online ("Have you ever searched for information about sex on the internet or social media?" – Yes/No), age (in years), gender (male/female), sexual orientation (heterosexual vs. non-heterosexual), financial situation (dependence vs. independence from financial support from third parties), and field of study (health courses vs. other fields). The model was estimated with N = 47 sexually active participants, presenting an R^2_cs of 0.25, which indicates a moderate fit (see Table 5). After adjusting for the remaining predictors, searching for sexual information online was not statistically significantly associated with risky sexual behaviors (B = −1.37; p = 0.246), suggesting that, in this sample, the simple fact of searching for content about sex on the internet/social networks does not clearly increase or decrease the likelihood of engaging in risky behaviors. In contrast, age and sexual orientation showed significant associations with sexual risk: older ages were associated with a higher probability of engaging in at least one risky. Gender, financial situation, and field of study did not show statistically significant associations with sexual risk (p > 0.05). In summary, the results suggest that risky sexual behaviors are mainly related to age and sexual orientation, with no evidence that self-reported exposure to digital content on sexual health has, in itself, a significant impact on this outcome, and therefore H4 was not supported.

Table 5 - Coefficients of the logistic regression model for risky sexual behaviors as a function of online sexual information seeking and sociodemographic variables

Predictor	**Estimates**	**Standard error**	**Z**	***p***
Interception	10.505	3.886	2.703	0.007
Searching for sexual information online	-1.371	1.183	-1.159	0.246
Age	-0.347	0.145	-2.394	0.017
Gender	0.242	0.861	0.282	0.778
Sexual orientation	-2.242	0.935	-2.398	0.016
Financial situation	0.009	0.883	0.010	0.992
Field of study (Health/Non-health)	-1.527	1.019	-1.499	0.134

Note. Estimates represent the logarithm of the odds of "no risky sexual behaviors (0)" vs. "presence of at least one risky sexual behavior (1)." The variable "Searching for sexual information online" corresponds to the item "Have you ever searched for information about sex on the internet or social media?" (0 = No; 1 = Yes). Gender was dichotomized into male (cis male and trans male) and female (cis female and trans female). Sexual orientation was recoded into heterosexual vs. non-heterosexual. Financial situation reflects dependence on financial support from family or others, and field of study was grouped into health-related courses vs. other fields.

Problematic use of social media, vulnerability to misinformation, and risky sexual behaviors (H5)

The fifth hypothesis (H5) proposed that young adults with higher levels of problematic social media use would be more vulnerable to health misinformation and engage in risky sexual behavior more frequently. Problematic social media use was assessed using the total score on the SMDS scale. Vulnerability to misinformation was operationalized using a specific indicator of perceived difficulty in distinguishing reliable online health information, derived from the eHEALS. Risky sexual behaviors were again aggregated into a dichotomous index (0 = absence; 1 = presence of at least one risky behavior). The relationship between problematic use and vulnerability to misinformation was examined using Pearson's correlation. For sexual risk, a binary logistic regression model was estimated with the presence of at least one risk behavior as the outcome. Regarding H5, no empirical support was found for the association between problematic social media use, vulnerability to misinformation, and risky sexual behaviors. The correlation

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between the total score for problematic network use and vulnerability to misinformation was positive but weak and not significant, r(63) = 0.15, p = 0.249, indicating that higher levels of problematic use do not translate, in this sample, into a greater perception of difficulty in distinguishing reliable online health information. Similarly, in the binary logistic regression model with the presence of at least one risky sexual behavior as an outcome, problematic network use was not significantly associated with sexual risk (p = 0.591; R^2_cs = 0.004; N = 51), suggesting no relevant relationship between these variables. Thus, hypothesis H5 was not supported.

Associations between mental health, health literacy, and social media use

This subsection presents additional exploratory analyses on the relationship between mental health, health literacy, problematic use of social media, and risky sexual behaviors. Table 6 presents the Pearson correlation matrix between symptoms of depression, anxiety, and stress (DASS-21), digital health literacy (eHEALS), mental health literacy (MHLq), problematic social media use (SMDS), and the dichotomous index of risky sexual behaviors (0 = absence; 1 = presence of at least one risky behavior). A moderate positive correlation was found between SMDS and DASS-21 (r = 0.42; p = 0.002), indicating that higher levels of problematic social media use are associated with greater psychological symptoms. A moderate positive correlation was also observed between MHLq and eHEALS (r = 0.46; p < 0.001), suggesting that participants with higher mental health literacy also tend to report higher digital health literacy. The remaining associations were weak and did not reach statistical significance (|r| < 0.27; p > 0.05; see Table 6). In addition, a simple linear regression model was tested with symptoms of depression, anxiety, and stress (DASS-21) as the dependent variable and problematic social media use (SMDS) as the predictor. The model was statistically significant and indicated that higher levels of problematic social media use are associated with a greater burden of mental health symptoms. We also examined whether mental health literacy (MHLq) predicted problematic social media use (SMDS). This linear regression model was not significant and accounted for only a small proportion of the variance in SMDS; although the coefficient was negative, suggesting that higher mental health literacy would tend to be associated with less problematic use, this effect did not reach statistical significance (see Table 7). Overall, these analyses point to a consistent association between problematic social media use and poorer mental health, but do not provide robust evidence that mental health literacy alone is linked to a healthier pattern of social media use.

Table 6 - Correlation matrix

		DASS-21	eHEALS	MHLq	SMDS	Risky sexual behaviors
DASS-21	R de Pearson	—				
	gl	—				
	p-value	—				
	Upper limit of the 95% CI	—				
	Lower limit of the 95% CI	—				
eHEALS	Pearson's R	-0,091	—			
	gl	49	—			
	p-value	0,527	—			
	Upper limit of the 95% CI	0,19	—			
	Lower limit of the 95% CI	-0,357	—			
MHLq	Pearson's R	-0,235	0,456	—		
	gl	49	49	—		
	p-value	0,098	<,001	—		
	Upper limit of the 95% CI	0,044	0,65	—		
	Lower limit of the 95% CI	-0,479	0,207	—		
SMDS	Pearson's R	0,424	-0,245	-0,185	—	
	gl	49	49	49	—	
	p-value	0,002	0,083	0,194	—	
	Upper limit of the 95% CI	0,626	0,032	0,096	—	
	Lower limit of the 95% CI	0,168	-0,488	-0,438	—	
Risky sexual behaviors	Pearson's R	0,111	0,268	-0,037	0,075	—
	gl	49	49	49	49	—
	p-value	0,439	0,058	0,795	0,599	—
	Upper limit of the 95% CI	0,375	0,506	0,241	0,344	—
	Lower limit of the 95% CI	-0,17	-0,008	-0,31	-0,204	—

Note: DASS-21 = total score for symptoms of depression, anxiety, and stress; eHEALS = digital health literacy; MHLq = mental health literacy; SMDS = problematic social media use; "Risky sexual behaviors" corresponds to a dichotomous index (0 = absence; 1 = presence of at least one risky behavior)

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Table 7 - Model Coefficients – DASS-21

Predictor	Estimates	Standard error	95% Confidence Interval		t	*p*
			Lower limit	Superior limit		
Interception	9.15	3.433	2.291	16.01	2.67	0.010
SMDS	2.03	0.570	0.892	3.17	3.56	<.001

Note: Simple linear regression model with the total score for DASS-21 as the dependent variable and problematic social media use (SMDS) as the predictor. R = 0.41, R^2 = 0.17, F(1, 63) = 12.70, p < 0.001, N = 65.

The results indicate that, in this sample of young adults, searching for sexual information online was not strongly associated with higher levels of digital health literacy or a lower likelihood of risky sexual behavior. In contrast, consistent associations were found between age and sexual orientation and sexual risk, as well as between problematic social media use and greater symptoms of depression, anxiety, and stress. At the same time, mental health literacy played a less clear role in modulating these effects.

4. DISCUSSION

The present study aimed to explore the relationship between risky sexual behaviors, online sexual information seeking, digital health literacy, mental health, mental health literacy, and problematic social media use in young adults. Overall, the results suggest that simple exposure to digital health content (or the perception of competence in dealing with online information) does not directly translate into safer sexual behaviors. At the same time, problematic use of social media is consistently associated with greater symptoms of depression, anxiety, and stress (Shannon et al., 2022).

The findings only partially supported the preregistered hypotheses. Online sexual information seeking was not reliably associated with safer sexual practices or lower sexual risk (H1, H4, H5), and measures of vulnerability to online misinformation showed no clear links with risky sexual behaviors (H3, H5). Additionally, problematic social media use showed a consistent pattern of association with poorer mental health, whereas mental health literacy and digital health literacy were weaker and selectively related to the outcomes.

Searching for sexual information online and risky behaviors (H1)

Contrary to H1, online sexual information seekers showed higher risk prevalence (67.4% vs 37.5%; χ^2, p=0.108), suggesting reverse causality: higher-risk youth seek more information about contraception/STI. The single-item measure ("Have you ever searched for information about sex on the internet or social media?") misses frequency, content quality, and source type, where pornographic/risky norms may predominate over evidence-based education (Borji-Navan et al., 2024). Structured digital interventions succeed where unmediated social media exposure fails.

Digital literacy in health and sexual behaviors (H2 and H3)

H2 was unsupported: eHEALS scores did not differ significantly between online sexual information seekers and non-seekers (t=1.38, p=0.172; d=0.40). H3 found no link between perceived ability to evaluate online health information (eHEALS item 3) and sexual risk. These null results likely reflect single-item measurement limitations and the gap between perceived self-efficacy (eHEALS) and actual critical appraisal skills needed for sexual health content (Holch & Marwood, 2020). Generic digital literacy appears insufficient against domain-specific misinformation in sexuality.

Sociodemographic factors and risky sexual behaviors (H4)

Regarding H4, the results showed that sociodemographic variables continue to play an essential role in explaining risky sexual behaviors. Older participants within the 18–30 age range and those who identified with non-heterosexual sexual orientations were more likely to report at least one risky sexual behavior. At the same time, gender and financial status did not show statistically significant associations. This pattern is consistent with international data documenting a higher burden of risk behaviors and poorer sexual health indicators among young adults and, consistently, among sexual minority youth, compared to their heterosexual peers (Költő et al., 2025; Pollitt & Mallory, 2021). Several authors have pointed out that, in the case of LGBTQIA+ youth, greater vulnerability stems not only from individual choices, but also from processes of discrimination, stigma, violence, and invisibility of their affective-sexual contexts (Fisher et al., 2024). These factors may encourage the use of social networks, dating apps, and sexualized digital environments, where the combination of socialization opportunities and high-risk norms contributes to more vulnerable behavior patterns. Our data thus reinforce the need for sexual health policies and interventions that are explicitly inclusive and sensitive to sexual and gender diversity, both in person and digitally. Generic strategies for promoting "safe sex" may be insufficient if they do not address structural inequalities and specific contexts of sexual socialization.

Problematic social media use, mental health, and risk behaviors (H5 and additional analyses)

H5 was unsupported: SMDS was unrelated to misinformation vulnerability (r=0.15, p=0.249) or sexual risk (p=0.591). However, problematic use strongly predicted depression, anxiety, and stress symptoms (DASS-21; moderate effect size), consistent with meta-analyses linking compulsive patterns to mental health impairment (Ferreira et al., 2025; Shannon et al., 2022). The lack of SMDS-sexual

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risk association likely reflects broad risk operationalization missing digital mediation (dating apps, sexting) where effects are strongest (Reeves et al., 2024).

Digital technologies, health promotion, and misinformation

Digital technologies offer health promotion potential while posing misinformation risks. Digital interventions (apps, interactive modules) improve sexual health knowledge and behaviors when evidence-based and interactive (Borji-Navan et al., 2024; Zhou et al., 2021). However, social media platforms contain high levels of inaccurate sexual health content amplified by algorithms prioritizing engagement over accuracy (Kbaier et al., 2024; Gaysynsky et al., 2024). The null findings for H1-H3 align with this duality: unstructured online sexual content exposure neither protects against risk nor builds critical appraisal skills sufficient for complex sexual health decisions. Generic digital literacy (eHEALS) appears necessary but insufficient against emotionally compelling, socially reinforced misinformation prevalent in sexuality topics. Structured, theory-based digital interventions remain essential to translate access into meaningful behavioral protection.

The lack of support for most hypotheses (H1-H3, H5) likely reflects methodological constraints and substantive insights. The modest sample size (N=65) reduced statistical power for small-to-moderate effects, while single-item measures lacked granularity to capture content quality, frequency, or sexual health-specific literacy, distinguishing protective from neutral digital exposure. A cross-sectional design cannot disentangle reverse causality. These null results challenge assumptions that mere access to sexual health content or generic digital literacy automatically translates into safer behaviors, highlighting sociodemographic primacy (H4). Future researchers should consider three lessons from these findings to strengthen subsequent studies and avoid similar limitations: (1) employ multi-item scales measuring frequency, platform type, and content quality of sexual health exposure; (2) oversample during low-stress academic periods or use incentives to achieve adequate power; (3) prioritize longitudinal designs or validated behavioral measures over self-reported risk indices. These methodological refinements will better isolate digital content effects from confounding developmental and sociodemographic influences among university students.

Implications for healthcare practice and training

Despite its limitations, the study offers pertinent implications for clinical practice and the training of health professionals, especially in nursing and psychology settings. First, the results highlight the importance of incorporating explicit digital literacy components related to sexual and mental health into curricula, including practical training in critically assessing social media content, recognizing signs of misinformation, and debating ethical dilemmas linked to online exposure (e.g., sharing intimate images, privacy, and digital consent). Second, the strong correlation between problematic social media use and symptoms of psychological distress suggests that professionals should routinely enquire about social media habits during consultations with young adults, just as they do with sleep, substance use, or social support. Brief tools, such as adapted versions of the SMDS, can assist in screening risk profiles and guiding quick interventions focused on use regulation, sleep hygiene, and alternative coping strategies (Ferreira et al., 2025; Shannon et al., 2022).

Thirdly, the greater vulnerability observed among sexual minority youth reinforces the urgency of digitally mediated interventions that combine evidence-based sexuality education with an affirmative framework of sexual and gender diversity (Fisher et al., 2024). Such interventions should be designed in co-creation with LGBTQIA+ youth, ensuring that they respond to their specific needs and offer safe spaces for support and belonging, reducing dependence on commercial platforms where exposure to stigma, violence, and asymmetrical power relations is frequent. Finally, the results suggest that future digital health interventions should be designed in an integrated manner, linking sexual health, mental health, and digital literacy - rather than fragmented approaches focused on a single domain. This ecosystemic perspective is consistent with recent proposals for “eHealth Literacy 3.0,” which emphasize cross-cutting skills for critically interacting with data, algorithms, and digital platforms (Milanti et al., 2025; Norman & Skinner, 2006).

Limitations and future directions

Several limitations should be recognized. Firstly, this is a cross-sectional study with a small, convenience sample mainly consisting of students from health-related courses, which restricts the generalizability of the results and prevents causal inference. Secondly, the operationalization of key variables employed simplified measures. Thirdly, all variables were self-reported, making them susceptible to memory bias, social desirability, and subjective interpretation of questions. Fourth, the study did not gather detailed information on platform types (e.g., general social networks versus dating apps), nor on specific experiences of exposure to sexually explicit content, sexting, cyberbullying, or digitally mediated sexual violence, all of which could be directly relevant to understanding risky sexual behaviors. Future research should aim to include larger, more diverse samples, including non-university youth, and employ both quantitative and qualitative methods. Longitudinal designs will facilitate the exploration of temporal trajectories between digital literacy, problematic social media use, mental health, and sexual behaviors. Moreover, more nuanced measures of health content consumption, such as frequency scales by content type (educational, pornographic, personal testimonials, health influencers) and interaction metrics (comments, shares, participation in closed groups), would be valuable. Finally, there is potential to develop and validate specialized digital literacy tools in sexual health, encompassing knowledge, technical skills, critical thinking, and values such as consent and gender equity.

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This study suggests that among young adults, occasional online searches for sexual information and perceptions of digital health literacy are not strongly linked to safer sexual behaviors, while problematic social media use is consistently associated with increased psychological distress. The findings reinforce the idea that digital technologies present both opportunities and risks: they can be powerful tools for promoting sexual and mental health, but in an unmediated daily context, they do not automatically ensure protection and may even intensify existing inequalities and vulnerabilities. To fully realize the potential of these technologies, it is essential to invest in evidence-based digital interventions, critical and inclusive digital literacy programs, and policies that recognize young people, particularly those from sexual minorities and socially marginalized groups, as active partners in shaping the digital environments they inhabit.

CONCLUSION

This study examined how exposure to digital sexual and mental health content influences knowledge, attitudes, and behaviors among Brazilian university students. Online sexual information seeking showed no association with safer practices (H1) or higher digital health literacy (H2), nor did perceived ability to evaluate online health information predict reduced sexual risk (H3). Sociodemographic factors—age and sexual minority status—proved stronger risk correlates than digital exposure (H4), while problematic social media use linked consistently to depression, anxiety, and stress but not sexual behaviors (H5). These preliminary findings suggest digital content exposure alone does not reliably promote protective knowledge or behaviors among university students. Structured, evidence-based digital interventions addressing both sexual health literacy and problematic use patterns warrant further investigation to determine their potential in this population.

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AUTHORS´ CONTRIBUTION

Conceptualization, G.C. and M.P.N.; data curation, G.C. and M.P.N.; formal analysis, G.C., I.O., M.T.M. and M.P.N.; funding acquisition, G.C.; investigation, G.C. and M.P.N.; methodology, G.C. and M.P.N.; project administration, G.C. and M.P.N.; resources, G.C. and M.P.N.; software, G.C.; supervision, G.C. and M.P.N.; validation, G.C. and M.P.N.; visualization, G.C., I.O., M.T.M. and M.P.N.; writing – original draft, G.C., I.O., M.T.M. and M.P.N.; writing – review & editing, G.C., I.O., M.T.M. and M.P.N.

CONFLICT OF INTERESTS

The authors declare no conflict of interests.

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