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Artificial intelligence and online health information use, self-diagnosis, and physician trust among adults in Saudi Arabia: A cross-sectional study

Online health information and physician trust

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ABSTRACT:

Introduction: Artificial intelligence (AI) tools and online health information are increasingly integrated into population health behavior in Saudi Arabia, raising concerns about self-diagnosis, cyberchondria, and trust in physicians.

Objectives: To assess online health information–seeking behavior (OHISB), cyberchondria severity, and physician trust among adults, and to examine their interrelationships.

Methods: In this cross-sectional study, an online questionnaire was distributed nationwide from May to June 2026, covering sociodemographic characteristics, OHISB (5 items, $\alpha = 0.83$), the Cyberchondria Severity Scale–Short Form (CSS-12; $\alpha = 0.89$), and physician trust (5 items, $\alpha = 0.71$). Responses from 1280 adults were analyzed using descriptive statistics, one-way analysis of variance, Pearson correlation, and multiple linear regression.

Results: The mean OHISB score was 3.38 ± 0.70, the mean CSS-12 score was 31.28 ± 7.23 (28.4% high severity), and the mean physician trust score was 3.90 ± 0.51. Sociodemographic variables were not associated with physician trust. Physician trust correlated inversely with OHISB ($r = -0.245$, $P < 0.001$) and CSS-12 ($r = -0.148$, $P < 0.001$), and both scores were highest in the lowest trust tertile ($F = 28.14$ and $F = 12.97$; $P < 0.001$). In multiple linear regression, OHISB and CSS-12 were independent negative predictors of physician trust (adjusted $R^2 = 0.062$).

Conclusion: Online health information seeking, including AI-based tools, and cyberchondria severity were independently associated with lower physician trust, underscoring the need for digital health literacy programs and clear guidance on the responsible use of AI-based health information.

1. INTRODUCTION

Artificial intelligence (AI) and digital technologies have substantially reshaped how healthcare information is accessed and delivered worldwide.[1,2] The internet has emerged as a major source of health-related information, allowing individuals to obtain medical knowledge instantly without direct interaction with healthcare professionals.[3] In Saudi Arabia, this transformation is supported by strong digital infrastructure and high internet penetration, as demonstrated in national Information and Communications Technology (ICT) and internet usage reports.[4,5] Furthermore, increasing educational attainment and digital literacy among the Saudi population have enhanced engagement with online health resources.[6] In parallel, national initiatives such as telemedicine services and the Seha Virtual Hospital have expanded access to healthcare and reinforced digital health transformation.[7,8]

The incorporation of AI into healthcare systems has shown considerable promise in enhancing care quality, patient safety, and operational efficiency.[1] AI applications can enhance diagnostic accuracy, clinical decision-making, and healthcare system performance in alignment with established quality frameworks such as those described in Crossing the Quality Chasm.[9] However, despite these advantages, important challenges persist, including concerns related to ethical governance, transparency, data privacy, and algorithmic bias.[1,2] Ensuring that AI technologies meet healthcare quality standards and are safely integrated into clinical practice remains a critical priority, and healthcare systems must balance innovation with regulation to maintain trust and ensure patient safety.[1,2]

In addition, there has been a growing public reliance on AI-driven tools and online symptom checkers for self-diagnosis.[10,11] Many individuals increasingly consult online platforms prior to seeking professional medical advice, a behavior often referred to as “Dr. Google” consultation.[12] Nevertheless, major technology providers and AI platforms explicitly recommend that users seek professional healthcare consultation and not rely solely on automated outputs.[13,14] This trend has important implications for the patient-centered model of care, which is built on trust, communication, and shared decision-making.[3,15] Moreover, the increasing use of online health information may alter the traditional physician–patient relationship, potentially affecting trust and expectations of care.[3,15]

The widespread use of online health information may lead to both beneficial and adverse outcomes at the population level.[16] On one hand, it empowers individuals to engage in self-care and make informed health decisions.[17] On the other hand, it may contribute to misinformation, cyberchondria, and increased health anxiety, particularly when information is misinterpreted or inaccurate.[12,18] Consequently, these behaviors may result in delayed medical consultation, unnecessary healthcare utilization, or inappropriate self-diagnosis.[10,11] In this context, understanding the relationship between online health information use, self-diagnostic behavior, and trust in physicians is essential from a public health perspective.[3,16]

Despite rapid digital transformation and increasing reliance on AI technologies, comprehensive Saudi studies addressing these issues have remained limited.[17,18] The present study therefore assessed the use of online health information, the prevalence of self-diagnostic practices, and their impact on trust in physicians among adults in Saudi Arabia, with the aim of providing population-level evidence to guide healthcare policy and optimize patient-centered care in the context of digital health transformation. The primary objective was to assess the association between online health information–seeking behavior and the level of trust in physicians among adults in Saudi Arabia.

2. MATERIALS AND METHODS

2.1. Study design and setting

This was a cross-sectional analytical study conducted across the Kingdom of Saudi Arabia using a web-based survey distributed electronically to ensure broad population coverage, an approach widely used in digital health research.

2.2. Participants

Adults residing in Saudi Arabia with regular internet access were eligible to participate. Healthcare professionals were excluded to reduce the potential influence of professional expertise on health-related knowledge and behaviors. Individuals who did not provide informed consent or who submitted incomplete questionnaires were also excluded from the analysis.

2.3. Sample size

Sample size estimation was performed using a 95% confidence level, a 5% margin of error, and an expected prevalence of 50%, yielding a minimum required sample size of 384 participants. An additional 20% was added to account for incomplete responses, bringing the target to 460. Data were collected over two months (May–June 2026) through an online survey distributed across social media platforms, whose extensive reach yielded substantially more responses than the targeted sample size. After data quality checks and the application of exclusion criteria, including removal of incomplete responses, duplicate entries, healthcare professionals, and participants without informed consent, 1280 participants were retained for analysis.

2.4. Sampling technique

A non-probability convenience sampling method was used through online recruitment via social media platforms and personal communication channels. This technique is commonly used in digital health research owing to its feasibility and its ability to reach a wide, diverse population.

2.5. Data collection instrument and measurements

The questionnaire consisted of four sections, covering sociodemographic characteristics, online health information–seeking behavior, self-diagnostic practices and cyberchondria, and physician trust. The sociodemographic section included key participant characteristics such as age, gender, marital status, education, and employment.

The online health information–seeking behavior section was assessed using a structured set of items, measured on a 5-point Likert scale, that captured the frequency and patterns of searching for health-related information, reliance on digital platforms, and use of online sources prior to consulting healthcare professionals. These items were adapted from validated cross-sectional survey instruments used in digital health research.[19,20]

Self-diagnostic practices and cyberchondria were assessed using an adapted version of the Cyberchondria Severity Scale–Short Form (CSS-12). The adaptation involved minor wording modifications to enhance cultural relevance without altering the scale's original structure or psychometric properties. The CSS-12 comprises 12 items across four dimensions: excessiveness, distress, reassurance-seeking, and compulsion. Responses were recorded on a Likert scale reflecting the frequency of behaviors such as repeated symptom searching, escalation of anxiety following online searches, and reliance on online diagnostic conclusions. The CSS-12 is a validated instrument widely used to assess cyberchondria and related behaviors.[21]

Physician trust was evaluated using a 5-item scale adapted from validated measures of trust in physicians, including confidence in clinical competence, communication, and honesty, as well as preference for professional consultation over online information. Responses were measured using a Likert scale, with higher scores indicating greater trust in physicians.[15]

The questionnaire underwent content validation through expert review and pilot testing to ensure clarity, relevance, and cultural appropriateness. Internal consistency reliability was assessed using Cronbach's alpha for each scale, demonstrating acceptable to good reliability consistent with previously published studies: OHISB scale, $\alpha = 0.83$; CSS-12, $\alpha = 0.89$; and physician trust scale, $\alpha = 0.71$.

2.6. Operational definitions

Online health information seeking is defined as the act of searching for health-related information through internet-based sources, including websites, mobile applications, and social media platforms.[19]

Self-diagnosis is defined as the process by which individuals interpret symptoms and identify potential medical conditions without consulting a qualified healthcare professional, relying on online information sources.[21]

Cyberchondria is defined as excessive or repeated online health information searching driven by health-related anxiety, which in turn amplifies such anxiety.[21]

Physician trust is defined as the degree of confidence that individuals place in physicians' competence, integrity, and clinical decision-making in the context of healthcare delivery.[15]

2.7. Ethical considerations

Ethical approval was obtained from the relevant Institutional Review Board prior to study initiation. Informed consent was obtained electronically from all participants before data collection. Participation was voluntary, and respondents had the right to withdraw at any time. All data were anonymized to ensure confidentiality and privacy, in accordance with international ethical standards for human-subject research.

2.8. Statistical analysis

Data were exported to SPSS version 25 for cleaning and analysis. Categorical variables were summarized as frequencies and percentages, and continuous variables as means and standard deviations. Physician trust was analyzed as a continuous score rather than dichotomized around its sample mean, to avoid information loss and the artificial balancing of groups associated with mean-based dichotomization. Bivariate associations were examined using chi-square tests for categorical variables, independent t-tests for two-group comparisons, one-way analysis of variance (ANOVA) across tertiles of the physician trust score, and Pearson correlation for continuous variables. A multiple linear regression analysis was then conducted to identify independent predictors of the physician trust score, with model fit evaluated using R^2, adjusted R^2, and the overall F-test, and model assumptions checked via the variance inflation factor (multicollinearity), the Durbin-Watson statistic (autocorrelation), the Breusch-Pagan test (homoscedasticity), and the Shapiro-Wilk test (normality of residuals). A P value < 0.05 was considered statistically significant.

The regression model included OHISB score, CSS-12 score, gender, educational level, and age group, selected for their theoretical relevance to the study's primary objective and to limit the number of candidate predictors relative to the sample size. Marital and employment status were collected but not included in the model, as both overlapped substantially with age group (younger participants were predominantly single/students; older participants were predominantly married) and would have introduced collinearity without adding independent explanatory power.

3. RESULTS

A total of 1280 participants completed the questionnaire and were included in the final analysis. The results are presented according to the four sections of the questionnaire: sociodemographic characteristics; online health information–seeking behavior (OHISB); self-diagnostic practices and cyberchondria severity (CSS-12); and physician trust. The association between physician trust and the OHISB and CSS-12 findings, and a multiple linear regression analysis of the predictors of physician trust, follow.

3.1. Sociodemographic characteristics of participants

Table 1 shows the sociodemographic characteristics of the 1280 participants. Slightly less than half of the participants (41.1%) were aged 18–30 years, and 51.6% were male. The majority held a bachelor's degree (60.1%), and more than half were married (55.2%). Half of the participants (50.5%) were employed.

Table 1. Sociodemographic characteristics of participants (n = 1280).

Demographic characteristic	Frequency	Percent (%)
Age group		
18–30 years	526	41.1
31–40 years	331	25.9

Demographic characteristic	Frequency	Percent (%)
41–50 years	261	20.4
>50 years	162	12.7
Gender		
Male	661	51.6
Female	619	48.4
Educational level		
High school or below	339	26.5
Bachelor's degree	769	60.1
Postgraduate (Master/PhD)	172	13.4
Marital status		
Single	574	44.8
Married	706	55.2
Employment status		
Employed	647	50.5
Unemployed	274	21.4
Student	227	17.7
Retired	132	10.3

3.2. Online health information–seeking behavior

As shown in Table 2, the overall mean OHISB score was 3.38 ± 0.70 (range 1–5), indicating a moderate-to-high frequency of online health information seeking. Table 2 shows the mean scores for the five OHISB items, ranging from 3.34 to 3.40. The highest mean scores were reported for general frequency of online health information searching and for reliance on online health information when making health-related decisions (both mean = 3.40), while the lowest mean score was reported for searching online before consulting a physician (mean = 3.34).

Table 2. Item-level mean scores of the online health information–seeking behavior (OHISB) and physician trust scales (n = 1280).

Item	Mean	SD
Online health information–seeking behavior (OHISB) scale		
1. I frequently search for health information online.	3.40	0.91
2. I search for health information online when symptoms appear.	3.39	0.90

Item	Mean	SD
3. I use websites, social media, or AI tools to obtain health information.	3.36	0.92
4. I search for health information online before consulting a physician.	3.34	0.93
5. I rely on online health information when making health-related decisions.	3.40	0.88
Overall OHISB score (5 items)	**3.38**	**0.70**
Physician trust scale		
1. I trust the clinical competence of physicians.	3.99	0.65
2. I have confidence in physicians' treatment decisions.	3.94	0.66
3. I believe physicians are honest in their dealings with patients.	3.92	0.67
4. Physicians explain medical information clearly and understandably.	3.85	0.68
5. I prefer consulting a physician rather than relying on online health information.	3.80	0.70
Overall physician trust score (5 items)	**3.90**	**0.51**

All items rated 1–5; higher scores indicate greater frequency or trust. AI, artificial intelligence; SD, standard deviation.

3.3. Self-diagnostic practices and cyberchondria severity

The overall mean CSS-12 score was 31.28 ± 7.23 (possible range 12–60). The CSS-12 does not have a single universally standardized cutoff; however, receiver operating characteristic (ROC) analyses in a validation study identified a CSS-12 score of 36 as an optimal threshold for distinguishing clinically significant cyberchondria.[22] Based on this threshold and the empirical distribution of scores in the present sample, participants were classified into three descriptive categories: low (score < 26), moderate (score 26–35), and high/clinically significant cyberchondria (score ≥ 36). As shown in Table 3, approximately half of the participants (50.3%) exhibited a moderate level of cyberchondria, 28.4% exhibited a high level consistent with clinically significant cyberchondria, and 21.3% exhibited a low level.

Table 3. Distribution of cyberchondria severity levels (CSS-12) among participants (n = 1280).

Cyberchondria severity level (CSS-12 total score)	Frequency	Percent (%)
Low (< 26)	273	21.3
Moderate (26–35)	644	50.3
High (≥ 36)	363	28.4

CSS-12 mean ± SD = 31.28 ± 7.23 (range 12–60). CSS-12, Cyberchondria Severity Scale–Short Form; SD, standard deviation.

3.4. Physician trust

The overall mean physician trust score was 3.90 ± 0.51 (out of 5). Table 2 presents the mean scores of the five physician trust items, which ranged from 3.80 to 3.99. The highest-rated item was confidence in physicians' clinical competence (mean = 3.99), while the lowest-rated item was preference for physician consultation over online information (mean = 3.80). Physician trust was retained as a continuous score (range 1–5; overall mean = 3.90 ± 0.51, median = 4.00) for all subsequent inferential analyses, including correlation and regression.

3.5. Association between physician trust and OHISB and cyberchondria severity

Table 4 presents the comparison of OHISB and CSS-12 scores across tertiles of the physician trust score, analyzed by one-way ANOVA. The mean OHISB score decreased progressively from the lower trust tertile (3.56 ± 0.67) to the middle (3.37 ± 0.65) and upper (3.20 ± 0.73) tertiles ($F = 28.14$, $P < 0.001$). The mean CSS-12 score followed the same pattern, decreasing from 32.63 ± 6.85 to 31.06 ± 7.15 and 30.16 ± 7.47 ($F = 12.97$, $P < 0.001$). Participants with lower physician trust therefore reported more online health information seeking and greater cyberchondria severity. No statistically significant association was found between physician trust and sociodemographic characteristics, including age, gender, education, marital status, or employment ($P > 0.05$ for all, not tabulated).

Table 4. Comparison of OHISB and CSS-12 scores across tertiles of the physician trust score (n = 1280).

Physician trust tertile	OHISB score, mean ± SD	CSS-12 score, mean ± SD	n
Lower tertile (1.00–3.60)	3.56 ± 0.67	32.63 ± 6.85	426
Middle tertile (3.61–4.20)	3.37 ± 0.65	31.06 ± 7.15	427
Upper tertile (4.21–5.00)	3.20 ± 0.73	30.16 ± 7.47	427
ANOVA: F (df = 2, 1277)	**28.14**	**12.97**	—
P value	**< 0.001[a]**	**< 0.001[a]**	—

[a] P < 0.05. Tertiles derived from the empirical distribution of the trust score. ANOVA, analysis of variance; CSS-12, Cyberchondria Severity Scale–Short Form; OHISB, online health information–seeking behavior; SD, standard deviation.

Pearson correlation analysis (Table 5) showed a moderate positive correlation between OHISB and CSS-12 scores ($r = 0.343$, $P < 0.001$), indicating that more frequent online health information seeking was associated with greater severity of cyberchondria. Physician trust was significantly and negatively correlated with both OHISB ($r = -0.245$, $P < 0.001$) and CSS-12 ($r = -0.148$, $P < 0.001$), indicating that higher levels of online health information seeking and greater cyberchondria severity were associated with lower trust in physicians.

Table 5. Pearson correlation coefficients among OHISB, CSS-12, and physician trust scores (n = 1280).

Variables	r	P value
OHISB total score – CSS-12 total score	0.343	< 0.001[a]
OHISB total score – physician trust score	−0.245	< 0.001[a]
CSS-12 total score – physician trust score	−0.148	< 0.001[a]

[a] P < 0.05. r, Pearson correlation coefficient. CSS-12, Cyberchondria Severity Scale–Short Form; OHISB, online health information–seeking behavior.

An independent-samples t-test showed that female participants (n = 619) reported a significantly higher mean OHISB score than male participants (n = 661) (3.42 ± 0.71 versus 3.34 ± 0.69; $t = -1.98$, $P = 0.048$).

3.6. Multiple linear regression: predictors of physician trust score

A multiple linear regression analysis was conducted to identify independent predictors of the continuous physician trust score, with OHISB score, CSS-12 score, gender, educational level, and age group entered as predictors. The overall model was statistically significant ($F(8, 1271) = 11.54$, $P < 0.001$) and explained a modest proportion of the variance ($R^2 = 0.068$, adjusted $R^2 = 0.062$).

As shown in Table 6, a higher OHISB score (per standard-deviation increase) was independently associated with a significantly lower physician trust score ($B = -0.112$; 95% CI, −0.141 to −0.083; $P < 0.001$), and a higher CSS-12 score (per standard-deviation increase) was also independently associated with a significantly lower physician trust score (B = −0.037; 95% CI, −0.065 to −0.008; P = 0.013). After adjustment for these two predictors, gender, educational level, and age group were not statistically significant predictors of physician trust score (P > 0.05 for all).

Table 6. Multiple linear regression analysis of predictors of physician trust score (n = 1280).

Predictor	B	SE	95% CI	P value
Constant (intercept)	3.885	0.035	3.816 to 3.953	< 0.001[a]
OHISB score (per SD increase)	−0.112	0.015	−0.141 to −0.083	< 0.001[a]
CSS-12 score (per SD increase)	−0.037	0.015	−0.065 to −0.008	0.013[a]
Gender: male (ref. female)	0.026	0.028	−0.028 to 0.080	0.342
Education: bachelor's degree (ref. high school or below)	−0.016	0.032	−0.079 to 0.047	0.612
Education: postgraduate (ref. high school or below)	−0.009	0.046	−0.099 to 0.081	0.841
Age 31–40 years (ref. 18–30 years)	−0.004	0.035	−0.071 to 0.064	0.915
Age 41–50 years (ref. 18–30 years)	0.011	0.037	−0.062 to 0.084	0.765
Age >50 years (ref. 18–30 years)	0.071	0.044	−0.015 to 0.158	0.107

[a] P < 0.05. OHISB and CSS-12 scores standardized before entry. $R^2 = 0.068$; adjusted $R^2 = 0.062$; $F(8, 1271) = 11.54$, P < 0.001. Diagnostics: VIF 1.01–1.31; Durbin-Watson 1.99; Breusch-Pagan LM = 8.50, P = 0.386; Shapiro-Wilk W = 0.996, P = 0.002. B, unstandardized coefficient; CI, confidence interval; CSS-12, Cyberchondria Severity Scale–Short Form; OHISB, online health information–seeking behavior; SD, standard deviation; SE, standard error.

Model diagnostics confirmed that the assumptions of the regression model were adequately met. Variance inflation factors for all predictors were below 1.4, well under the threshold of 5, and the Durbin-Watson statistic (1.99) indicated no autocorrelation of residuals. The Breusch-Pagan test was not statistically significant (P = 0.386), supporting homoscedasticity. The Shapiro-Wilk test indicated a departure of the residuals from normality (P = 0.002); given the large sample size and the robustness of ordinary least squares estimation to minor deviations, this was not considered to materially affect the coefficients or their confidence intervals.

4. DISCUSSION

This study assessed online health information–seeking behavior (OHISB), cyberchondria severity (CSS-12), and physician trust among 1280 Saudi adults, with particular attention to AI-assisted health information sources. A moderate-to-high level of OHISB was observed (mean = 3.38 ± 0.70), with the highest-rated items relating to general search frequency and the use of websites, social media, and AI tools. This aligns with global evidence that AI-driven platforms and digital symptom checkers have become integral to population health-information behavior, often preceding professional consultation.[10,11] A recent web-based survey similarly reported that, although search engines and health websites remain dominant, an increasing proportion of internet users now turn to large language model–based chatbots, particularly younger individuals reporting greater trust in AI.[23] In the present sample, age group was not a significant predictor of physician trust, suggesting that greater adoption of AI-based sources among younger individuals may not translate into age-related differences in trust toward physicians. Although major AI providers state that their outputs should not replace professional consultation,[13,14] the present findings suggest that many Saudi internet users consult such tools before seeking physician advice, consistent with the "Dr. Google" phenomenon.[12]

Approximately half of the sample (50.3%) demonstrated moderate cyberchondria severity, and more than a quarter (28.4%) demonstrated high severity, with an overall mean CSS-12 score of 31.28 ± 7.23. This proportion is broadly consistent with previous Saudi research reporting a considerable burden of cyberchondria and somatic symptoms linked to internet-based self-diagnosis,[18] as well as with a more recent cross-sectional study among primary healthcare patients in Saudi Arabia, which similarly identified a high prevalence of cyberchondria and highlighted health literacy as a key factor influencing the relationship between online searching and health anxiety.[12] The moderate positive correlation observed between OHISB and CSS-12 scores ($r = 0.343$, $P < 0.001$) supports the conceptual model proposed by McElroy and Shevlin, in which excessive online health searching both reflects and reinforces health-related anxiety.[21] This relationship is also consistent with the systematic review and meta-analysis by McMullan et al, which concluded that online health information seeking is consistently associated with cyberchondria across diverse populations.[16]

With respect to physician trust, the overall mean score (3.90 ± 0.51, median = 4.00) indicated a moderate-to-high level of trust, although the distribution showed considerable variability across the sample, as reflected in the tertile-based comparisons. The correlation analysis showed small-to-moderate but statistically significant negative associations between physician trust and both OHISB ($r = -0.245$, $P < 0.001$) and CSS-12 ($r = -0.148$, $P < 0.001$), indicating that greater reliance on online and AI-based health information, and higher levels of cyberchondria, were associated with somewhat lower confidence in physicians. Consistent with this, participants in the lower tertile of physician trust reported higher mean OHISB scores (3.56 ± 0.67) than those in the upper tertile (3.20 ± 0.73, $F = 28.14$, $P < 0.001$), and a comparable pattern was observed for CSS-12 scores (32.63 ± 6.85 versus 30.16 ± 7.47, $F = 12.97$, $P < 0.001$).

This variability in physician trust may reflect the dual influence of Saudi Arabia's expanding digital health infrastructure, including telemedicine services and the Seha Virtual Hospital,[7,8] alongside the growing accessibility of AI-based health information that may, for some individuals, compete with rather than complement physician consultation. A related tension has been documented in Saudi research on AI-powered chatbots, where acceptance and continued use depended heavily on perceived trust and security rather than on substitution for physician care;[24] although that study examined older adults, the underlying dynamic may extend to other age groups. The negative associations observed here are consistent with the patient-centered care framework described by Tan and Goonawardene, in which internet health information seeking can alter the physician-patient relationship and attenuate trust when online information conflicts with professional advice.[3] A recent survey and agent-based modeling study further raised the concern that excessive trust in AI tools could delay timely professional care; the present findings cannot establish such a delay, but the observed inverse relationship points toward a similar dynamic meriting longitudinal investigation.[25]

The multiple linear regression confirmed that OHISB score ($B = -0.112$; 95% CI, -0.141 to -0.083; $P < 0.001$) and CSS-12 score ($B = -0.037$; 95% CI, -0.065 to -0.008; $P = 0.013$) were independent negative predictors of physician trust after adjustment for gender, educational level, and age group, although the model explained only a modest proportion of the variance (adjusted $R^2 = 0.062$). None of the sociodemographic characteristics were significant predictors. This contrasts with earlier studies in non-Saudi contexts that reported demographic differences in trust,[15] a discrepancy possibly explained by the relatively homogeneous digital exposure of the Saudi population given high internet penetration.[4,5]

A modest, borderline-significant difference was also observed between genders, with female participants reporting a slightly higher mean OHISB score than males (3.42 vs. 3.34, $P = 0.048$). While this difference should be interpreted cautiously given its proximity to the conventional significance threshold, the direction is consistent with prior research indicating that women tend to be more engaged in health information seeking, often in connection with their caregiving roles within the family unit.[19,20]

Taken together, these findings point to a modest but statistically significant tension within the integration of AI and digital health technologies into the Saudi healthcare system. While such technologies offer substantial potential to improve healthcare quality, safety, and accessibility,[1,2,9] the present results suggest that frequent, unsupervised use of AI tools and online platforms for self-diagnosis is associated with somewhat lower trust in physicians, particularly among individuals who engage in more anxiety-driven online searching. Given the modest effect sizes and the limited variance explained by the regression model, these findings should be regarded as indicative rather than conclusive; nonetheless, they support the value of incorporating health literacy education and clear guidance on the appropriate use of AI-based health tools within national digital health strategies.[6,17]

4.1. Strengths and limitations

This study benefits from a relatively large sample size ($n = 1280$) and the use of validated, previously applied instruments, enhancing statistical power and measurement reliability. Nonetheless, several limitations warrant consideration. As a cross-sectional study, no causal inferences can be drawn, and the observed associations between OHISB, cyberchondria, and physician trust may be bidirectional; lower baseline trust could plausibly drive online information seeking rather than result from it. The regression model explained only a modest proportion of the variance in physician trust (adjusted $R^2 = 0.062$), suggesting that unmeasured factors, such as prior healthcare experiences and general institutional trust, likely play an important role. The non-probability convenience sampling and self-reported measures may also limit generalizability and introduce social desirability or recall bias, and the larger-than-planned sample, driven by uncontrolled online distribution, may have favored more digitally engaged respondents. Longitudinal research is needed to clarify causal direction and identify additional determinants of physician trust.

5. CONCLUSION

This study found that online health information–seeking behavior, including the use of AI-based tools, is prevalent among Saudi adults and is significantly associated with higher cyberchondria severity and a lower physician trust score. While sociodemographic characteristics did not significantly predict physician trust, both OHISB and cyberchondria severity emerged as independent negative predictors of physician trust score in multiple linear regression analysis, although the modest explained variance suggests that additional factors beyond those measured in this study likely contribute to physician trust. These findings highlight the need to integrate digital health literacy initiatives and provide clear public guidance on the appropriate role of AI-based health information within the Saudi healthcare system, with the aim of preserving the physician-patient relationship while supporting the safe and effective use of digital health technologies.

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