Original Article

eHealth Literacy among Adult Dental Patients Attending the University of Rwanda Polyclinic

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Abstract

Background
eHealth literacy (eHL) is an important skill enabling individuals to access, evaluate and use electronic health information for informed decision making. Despite the growing use of digital health platforms globally, its status among dental patients in developing countries like Rwanda seems underexplored.
Objectives
To assess eHealth literacy among dental patients attending the University of Rwanda polyclinic.
Methods
A cross-section survey was conducted among 306 dental patients attending University of Rwanda Polyclinic. Data were collected using the eHealth Literacy Scale (eHEALS), an 8-item questionnaire measuring self-reported eHL skills. Descriptive and inferential statistics, including t-test and ANOVA were used for data analysis.
Results
Dental patients had moderate eHL with a mean score of 30.84±4.71. Significant score differences ($p < 0.05$) were observed by age, where adults of 48-57 scored 32.47±1.92 higher than those in other age groups, by gender, with males scoring 31.52±4.01 higher than females, and by residence with a score of 32.71±4.50 higher in rural residents.
Conclusion
eHL prays a key role in improving oral health outcomes. Participants showed moderate eHL, though disparities exist among females, urban residents and older populations. Enhancing eHL can boost awareness, prevention and informed dental care decisions.
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Keywords: eHealth literacy, electronic Health information, Oral health, Dental Patients, Rwanda.

Introduction

The advancement of information and communication technology changed the way of acquiring and availing health information.[1] Using the internet to seek health information has become both common and preferred,[2] as it offers a popular and convenient means of accessing information anonymously, with unlimited availability, affordability and ease of access.[3] Globally, as the number of internet users increases, so does the number of online health information seekers.[4] For example, in the US, around 35% of the adult population had used online resources to learn about medical conditions at least once a month in 2013.[5] Rwanda has also demonstrated significant progress in digital connectivity, with 86.2% of the population regularly using mobile phones and 34.4% being internet users, reflecting notable progress in digital adoption.[6] These advancements in mobile and internet penetration provide a promising foundation for enhancing health education through digital platforms. eHealth encompasses a wide range of applications in healthcare delivery, including information dissemination and sharing, and serves as an effective approach to enhance awareness of health risks and protective behavior, potentially reducing inequalities and creating a conducive environment for health education.[7]

The presence of numerous mobile health applications prompted researchers to explore the different reasons why they were designed; and the researchers have found that mainly they were for health education about preventive behavior, others assist in explaining treatment procedures, and they go further to facilitate online booking [7] and improve communication with healthcare providers.[2] Though the number of eHealth consumers grows and electronic information is available on the internet, it is of utmost importance to possess a core set of skills and knowledge to effectively and efficiently navigate and use online information resources.[8] These skills collectively referred to eHealth Literacy (eHL), were defined as the capability of an individual to use internet in the quest of searching, acquiring, understanding and using health information to make informed decisions, adopt health behaviors and manage health conditions.[8]

The eHealth literacy skill is necessary for the user to identify and recognize authentic health resources, locate and retrieve relevant information with a genuine understanding of the science behind it.[9] Research evidence shows that eHealth literacy serves as an effective approach to promote health and improve access to relevant health information.[4] It creates conducive environments for patient self-education and personal engagement in healthcare management, and enhances communication between the patient and the healthcare provider.[8] A study in Sweden has shown that higher eHealth literacy was associated with good health status and assisted in the management of chronic conditions.[10] Good eHL improves knowledge about health,[2, 11,12] and reduces unnecessary visits to health facilities,[13] as some interventions may be delivered via technological devices.[11,14]

Low- and middle-income countries (LMICs) have made significant advancements in digital health, yet challenges in eHealth literacy continue to limit their full potential. Promising eHealth interventions have emerged, improving healthcare quality and accessibility, but were hindered by disparities in internet access, education, and infrastructure.[15] A regional assessment by MEASURE Evaluation explored digital readiness and interoperability in Rwanda, highlighted the gap in digital literacy among healthcare workers and patients, and emphasized the need for targeted training, user-friendly systems, and digital literacy to enhance healthcare delivery.[16]

The global status report on oral health published in 2022 by World Health Organization (WHO) estimates that almost half of the global population

experience one or many oral diseases, comprising mainly of the dental caries both in primary and permanent dentition, chronic diseases of the periodontium, missing teeth and oral and lip cancer,[17] and some of these conditions may last throughout life at its different stages.[18] However, a positive attitude and good practice towards oral health, backed with good knowledge, may significantly help in the prevention of most of these conditions.[19]

eHealth applications such as mHealth can significantly support promoting preventive behavior like oral hygiene practice.[7,20] The educational material through mHealth apps is delivered to consumers in various forms, for instance, written instructions that pop up in the form of notifications and reminders, and instructional videos.[12] Other interactive applications, such as the one introduced in India, which helps the user to record a video showing tooth brushing approaches,[21] yielded efficient and fruitful motivation to users who successfully adopted their use. More and more electronic resources were developed for educational purposes in oral health as well as other disciplines, such as chronic condition management.[22]

With the unescapable increase in production of electronic health resources for information access, good eHealth knowledge and awareness are required to effectively embrace this approach to health promotion. It is therefore important for users to have prior knowledge and understanding of how to navigate the information resources, what kind of information they request, and their capability to discern and wisely use the information obtained online for behavior and lifestyle change or engagement in healthy decision-making.

Even though the numerous benefits of eHL have been elucidated from different literature across the globe, the limited knowledge about the status of this emerging concept among dental patients in low- and middle-income countries, especially in Rwanda, persists.

The present study was the first to assess eHealth literacy of patients seeking dental services at the University of Rwanda Polyclinic and produced evidence-based facts vital for new eHealth solution development of eHealth interventions for oral health promotion, preventive practices, and patient education.

Method

Study design

This study employed a quantitative, descriptive, and analytical cross-sectional design. It was carried out on patients seeking dental and oral healthcare services at the University of Rwanda Polyclinic, who had previously used online resources to access health information. Given the context and objectives of the study, a cross-sectional design was appropriate for assessing the current state of eHL in a defined population at a single point in time. The quantitative approach allowed for objective measurement and statistical analysis.

Study area and Study Population

The current study was carried out at the University of Rwanda Polyclinic, located in Nyarugenge District, Kigali City, Rwanda. The University of Rwanda Polyclinic is part of the University of Rwanda Holding Groups Limited, a company fully owned by the University of Rwanda. The polyclinic offers specialized health services in dental care, ophthalmology, optical laboratory services, internal medicine, physiotherapy, biomedical laboratory and medical imaging. The dental department served as the study site, given its dynamic and diverse patient population. This study specifically targeted adult dental patients(≥18years) who had previously used the internet for health information.

Sample size and sampling strategy

To determine the appropriate sample size for this study, the estimated target population consisted of 1460 dental patients, calculated based on the average number of individuals attending the dental department over five working days for a four-week

period (approximately 73 patients per day).Given this finite population, Taro Yamane's simplified formula for sample size determination was applied: n=N/(1+N(e)2), where n is the sample size, N is the population size (1460), and e is the margin of error, set at 0.05 to align with a 95% confidence level.[23] This approach, widely used in survey research when estimating proportions in the absence of known population parameters,[23] resulted in a required sample of 316 respondents. Of 316 distributed questionnaires, 306 were completed, yielding a 96.8% response rate.
To ensure fairness and minimize selection bias, a probabilistic sampling strategy was adopted.[24] Each incoming dental patient was first screened against the study inclusion criteria. Eligible patients were asked to draw a folded piece of paper from the box. The papers were marked with either "Yes," indicating agreement to participate, or "No," indicating non-selection. This simple randomization method was used to simulate a random selection process and give each eligible participant an equal chance of being included in the study.[24]

Inclusion and exclusion criteria

The study population consisted of patients who visited the dental department during the data collection period and had previously used online resources to seek health information. The eligible participants were those aged 18 years and above, with access to the internet and ownership of electronic devices such as smartphones, tablets, and computers and who possessed adequate literacy skills to complete the questionnaire. Individuals were excluded from the study if they were unable to provide informed consent, were in critical health conditions, had sensory disabilities such as blindness or deafness that would hinder their participation, or reported no interests or means to use electronic resources for health information. No kind of incentives were given to participants, as participation was fully voluntary, based on personal decision.

Data collection tool

The eHL was assessed using the 8-item electronic Health Literacy Scale (eHEALS) created by Norman and Skinner, which evaluates perceived skills in locating, evaluating, and applying online health information to address health concerns and take health-related decisions.[8] Each question was rated on a 5-point Likert scale (from 1= "strongly disagree" to 5= "strongly agree") and evaluates user's understanding, confidence, and perceived skills.[8]

The total eHL score was computed by summing responses to the eight eHEALS items, with individual item scores ranging from 1 to 5. Thus, total scores could range from 8 to 40, with higher scores indicating greater self-perceived eHL. To interpret participants' eHealth literacy levels, eHEALS scores were categorized into three groups: low (8–20), moderate (21–30), and high (31–40). This classification was informed by a Brazilian study,[25] which proposed similar score stratifications to standardize eHEALS interpretation based on participant education levels. Adopting a comparable approach allowed for a more meaningful assessment of self-perceived eHL among the study population.

The internal consistency of the eHEALS was assessed using Cronbach's alpha in Stata version 17, resulting to a coefficient of 0.78, indicating acceptable reliability. [26] The eHEALS tool was supplemented with five additional questions to capture participants' demographic data, including age, gender, education level, residence area, and employment status,[8] The collection of data spanned a period of four weeks, starting from April 15, 2024, to May 10, 2024.

Although the eHEALS was developed in English, and used in various populations, for this study, the tool was translated into Kinyarwanda to ensure comprehension and accessibility for participants. The translation process aimed to preserve the original meaning of each item; however, no formal cross-cultural validation process was conducted beyond this translation.

While the tool demonstrated acceptable internal consistency (Cronbach's alpha = 0.78), the absence of a full cultural adaptation process such as back-translation, expert panel review, or pilot testing represents a limitation. This may affect the extent to which the items accurately reflect the construct of eHealth literacy within the Rwandan cultural and linguistic context. Future studies are encouraged to undertake the comprehensive cultural validation to strengthen the tool's reliability and construct validity in similar settings.

Data analysis

Data were collected using the eHEALS. Questionnaires were distributed to dental patients during their waiting time at the polyclinic. Participation was voluntary, and participants provided informed consent before completing and returning the questionnaires. Raw data were recorded and organized in Microsoft Excel, and later imported, coded, and analyzed using Stata version 17. Demographic characteristics and eHEALS responses were summarized using frequencies and percentages. The eHL score was presented with summary statistics, including the mean and standard deviation. Prior to selecting the appropriate statistical tests, the distribution of data was assessed. The Mann-Whitney U test indicated that the distribution of eHL scores across age categories was non-normal, particularly due to skewness and unequal sample sizes in some age groups. [27] Therefore, the Kruskal-Wallis test, a non-parametric alternative to ANOVA,[28] was used to compare eHL scores among multiple age groups, as it does not assume normality of variances.

For variables such as gender and residence, which consisted of two independent groups and met the assumption of normality, the independent t-test was used to assess differences in eHL scores.[29] Meanwhile, education level and occupation, which included more than two categories and were normally distributed, were analyzed using One-way ANOVA to compare group means. [30]

Ethical considerations

To ensure the conformity of the study to the code of research ethics, it was presented and approved by the College Institutional Review Board (IRB) ('CMHS/IRB/195/2024). The permission to conduct data collection at the study site was granted by the management board of the University of Rwanda Polyclinic. The questionnaires were anonymized using unique participant codes, and no personal specific identifiers were collected. All respondents have signed the informed consent form after being provided with information about the study including goals, design and significance. The participation was fully voluntary and participants were ensured to withdraw from the study at any time if they are not willing to complete the study process.

Results

Demographic characteristics of participants

Data were collected from 306 dental patients attending the University of Rwanda Polyclinic. The majority of participants (n = 140; 45.75%) were aged between 28 and 37 years, followed by those aged 18 to 27 years (n = 80; 26.14%). A small proportion of participants (n = 8; 2.61%) were over 57 years of age. Male participants were slightly more represented than females, with 169 males (55.23%) and 137 females (44.77%). Most participants resided in urban areas (n = 271; 88.87%), while a minority were from rural settings (n = 35; 11.44%).

In terms of educational attainment, the majority of participants were university graduates (n = 213; 69.61%). High school graduates comprised 15.03% (n = 46), while 15.36% (n= 47) held postgraduate qualifications. Notably, none of the respondents reported having no formal education. Regarding occupation, most participants were employed in government or corporate sectors (n = 243; 79.41%). Students constituted 10.46% (n = 32), and 10.13% (n = 31) were either unemployed or chose not to disclose their occupational status.

Table 1. Respondents' demographic characteristics

	Variable	Frequency (n)	Percentage (%)
Gender	Male	169	55.23
	Female	137	44.77
Age	18-27 Years	80	26.14
	28-37 Years	140	45.75
	38-47 Years	55	17.97
	48-57 Years	23	7.52
	58 years and above	8	2.61
Residence	Urban	271	88.56
	Rural	35	11.44
Education	High school graduate	46	15.03
	University graduate	213	69.61
	Masters graduate	47	15.36
Occupation	Student	32	10.46
	Regular Workers	243	79.41
	Unemployed	31	10.13

Frequency distribution of eHealth Literacy levels among dental patients

Table 2. Frequency distribution of the e-health literacy of the respondents

Variables	Strongly Disagree; n(%)	Disagree; n(%)	Undecided; n(%)	Agree; n(%)	Strongly Agree; n(%)
I know what health resources are available on the internet	19(6.21)	27(8.82)	62(20.26)	152(49.67)	46(15.03)
I know where to find helpful health resources on the internet	16(5.23)	5(1.63)	50(16.34)	186(60.78)	49(16.01)
I know how to find helpful health resources on the Internet	5(1.63)	23(7.52)	24(7.84)	160(52.29)	94(30.72)
I know how to use the internet to answer my questions about health	0(0)	7(2.29)	20(6.54)	161(52.61)	118(38.56)
I know how to use the health information I find on the internet to help me	0(0)	21(6.86)	24(7.84)	155(50.65)	106(34.64)
I have the skills I need to evaluate the health resources I find on the internet	0(0)	60(19.61)	52(16.99)	112(36.60)	82(26.80)
I can tell high quality health resources from low quality health resources on the internet	12(3.92)	73(23.86)	74(24.18)	80(26.14)	67(21.90)
I feel confident in using information from the internet to make health decisions	0(0)	18(5.88)	42(13.73)	190(62.09)	56(18.30)

Participants generally reported a high level of perceived eHL. The strongest agreement was observed for the item "I feel confident in using information from the internet to make health decisions", with 190 participants (62.09%) agreeing and 56 (18.30%) strongly agreeing. Similarly, over 90% of respondents either agreed or strongly agreed with the statement "I know how to use the internet to answer my questions about health" (52.61% agree; 38.56% strongly agree), indicating strong self-efficacy in seeking health information online.

Conversely, a notable proportion of respondents reported challenges in appraising the quality of online health resources. Specifically, 73 participants (23.9%) disagreed and 12 (3.9%) strongly disagreed with the item "I can tell high quality health resources from low quality health resources on the internet", while 74(24.2%) remained undecided. This suggests a potential limitation in critical evaluation skills, despite the high levels of confidence in locating and using online information.

These findings highlight a potential gap between the ability to access digital health information and the critical appraisal of its credibility, which is an essential component of eHL.Table 2

Descriptive statistics of eHealth Literacy score

The mean score for the eight individual eHEALS items ranged from 3.38 ± 1.17 to 4.27±0.68, indicating generally high levels of self-perceived eHealth literacy among participants. The highest-rated item was "I know how to use the internet to answer my questions about health" with a mean score of 4.27 ± 0.68, reflecting strong confidence in using online platforms for health inquiries. In contrast, the lowest mean score was reported for "I can tell high quality health resources from low quality health resources on the internet" at 3.38 ± 1.17, suggesting limited confidence in evaluating the credibility of online health information. The overall eHealth literacy score had a mean of 30.84 ± 4.71, indicating a moderately high level of perceived eHealth literacy across the sample. Table 3

Table 3. eHealth Literacy Score

eHealth Literacy Items	M	SD
I know what health resources are available on the internet	3.58	1.04
I know where to find helpful health resources on the internet	3.80	0.90
I know how to find helpful health resources on the Internet	4.02	0.91
I know how to use the internet to answer my questions about health	4.27	0.68
I know how to use the health information I find on the internet to help me	4.13	0.82
I have the skills I need to evaluate the health resources I find on the internet	3.70	1.06
I can tell high quality health resources from low quality health resources on the internet	3.38	1.17
I feel confident in using information from the internet to make health decisions	3.92	0.74
Total mean Score of eHealth Literacy	**30.84**	**4.71**

M: Mean; SD: Standard Deviation

Association between demographic factors and eHealth Literacy

Table 4 presents the differences in eHealth literacy (eHL) scores across demographic subgroups. An independent sample t-test revealed a statistically significant difference in mean eHL scores between genders, with males scoring 31.52 ± 4.01 and females 30.00 ± 5.33, t(304) = 2.85, p = 0.0046. A similar, though unexpected, trend was observed based on residence, where rural participants scored 32.71 ± 4.50, significantly higher than their urban participants who scored 30.60 ± 4.69, t(304) = -2.51, p = 0.012. Significant differences were also observed across age groups, as indicated by the Kruskal-Wallis test, ($x^2(4) = 15.451$, p = 0.0039. The highest eHL mean score of 32.47±1.92 was observed in the 48-57 years age group, while the lowest, 29.50 ± 4.24 was in those aged 58 years and above. Conversely, one-way ANOVA showed no statistically significant differences in eHL scores across education levels, F(2,303) = 0.18, p = 0.83, or occupational categories, F(2,303) = 0.41, p = 0.66. These results suggest that gender, age, and residence are key factors associated with variations in self-perceived eHL, while education and occupation were not significant predictors in this sample. Table 4

Table 4. The association between demographic characteristics and eHealth Literacy

Group	n	M (SD)	t-test(t_{304}), ANOVA, Kruskal Wallis test (p-value)
Gender[a]			
Male	169	31.52 (4.01)	2.85 (0.0046)**
Female	137	30 (5.33)	
Age[b]			
18-27 Years	80	31.58 (3.12)	15.451 (0.0039)**
28-37 Years	140	30.65 (5.65)	
38-47 Years	55	29.76 (4.61)	
48-57 Years	23	32.47 (1.92)	
58 years and above	8	29.5 (4.24)	
Residence[a]			
Rural	35	32.71 (4.50)	-2.51 (0.012) **
Urban	271	30.60 (4.69)	
Education[c]			
High school graduate	46	30.45 (2.70)	0.18 (0.83)
University graduate	213	30.92 (4.89)	
Masters graduate	47	30.87 (5.41)	
Occupation[c]			
Student	32	30.34 (3.48)	0.41 (0.66)
Regular workers	263 (85.95)	30.96 (5.10)	
Unemployed	18 (5.88)	30.38 (1.45)	

n: Frequency; M: Mean score SD: Standard deviation; t(304)=value of the t-test at 304 degree of freedom; **p<0.001; a: t-test; b: Kruskal Wallis test; c: ANOVA

Discussion

This study aimed to assess the level of eHealth literacy among dental patients in Rwanda, a population for whom digital access to health information is becoming increasingly relevant. The overall findings suggest that participants demonstrated a moderate to high level of self-perceived eHealth literacy, with an average eHEALS score of 30.84 ± 4.71, indicating a generally positive ability to seek, understand, and evaluate online health information. Notably, variations in eHealth literacy were observed across demographic subgroups, suggesting that factors such as age, gender, and place

of residence may influence individuals' confidence and competence in navigating digital health resources.

The results of this study are comparable to those of a survey conducted among dental patients in Iran, where the average eHL score was 30.55 ± 4.069.[9] These findings suggest that dental patients generally demonstrate relatively high levels of eHL. This implies a willingness among patients to seek accurate information online to improve their understanding of oral health risks, prevention, and treatment. Notably, many participants responded positively to the statement, 'I know how to use the internet to answer my questions about health', indicating strong confidence in their ability to navigate online resources. They also showed trust in their ability to distinguish between reliable and unreliable sources of health information.

While patients may appear confident and enthusiastic about using internet-sourced health information, some practitioners have observed that its misuse can lead to inappropriate demands and expectations for more complex care, often requiring additional time to address these misconceptions. [31] Despite such frustrations, research has shown that strong health literacy is associated with better health outcomes. [32, 33] This emphasizes the importance of assessing patients' ability to effectively acquire and use online health information, ensuring it serves its intended purpose: empowering individuals to actively engage in their own healthcare.

The age-related differences observed in this study, where middle-aged adults demonstrated higher eHL compared to both younger and older individuals, align with findings from previous studies. Research conducted in Korea among older adults (mean age 76.8 years) reported significant decline in eHL with age, with a low mean score of 15.4 ± 10.8, and only 22.4% of participants achieving high literacy levels. [34] Similarly, a study involving informal caregivers of children with burns found that adults over the age of 40 had lower eHL compared to their younger counterparts. [35]

In our study, individuals aged 58 years and above had the lowest eHL score, which may be attributed to age-related declines in cognitive function, reduced digital engagement, and less trust in electronic resources.[36] Conversely, those aged 48-57 exhibited the highest eHL, potentially due to higher educational attainment and greater access to and familiarity with digital tools. potentially due to higher educational attainment and greater access to and familiarity with digital tools.[37] As healthcare continues to shift into digital spaces, enhancing eHealth literacy among older adults remains essential to ensure equitable access to health information and promote informed decision-making, ultimately contributing to improved health outcomes.[36]

Gender has been identified as a key factor influencing variations in eHL. In the present study, male participants demonstrated significantly higher eHL score than females. This may be attributed to sample characteristics, particularly the higher proportion of male participants and their relatively greater educational attainment. This finding is consistent with a study conducted among college students, which also reported higher functional eHL levels in male students compared to their female counterparts.[38] Supporting this, a study among patients with cardiovascular disease found that male participants exhibited higher levels of digital confidence across various domains, including internet use, compared to females, suggesting that differences in confidence, digital skills, and attitudes towards technology may partly explain gender differences in eHL.[39]

However, contrasting evidence exists in the literature. For instance, a study among African-American women reported a relatively high mean eHL score of 29.4 ± 7.8.[40] Another study found higher eHL among female participants, attributing this

to greater confidence and skill in searching for health-related information online compared to males.[41] These differing findings across studies highlight that gender-related variations in eHL may be context-dependent, influenced by population characteristics such as education, age, and access to digital resources.

In this study, the rural residents comprised only 11.44% of the sample, a proportion that is understandable, given that the study was conducted in an urban-based clinic. Typically, urban residents are expected to exhibit higher eHL due to greater access to technology, infrastructure, and health-related resources, with urbanization often cited as a positive predictor of eHL.[35] However, the findings of this study challenge that assumption, as rural participants demonstrated higher eHL scores than their urban counterparts. This unexpected result suggests that other contextual or individual-level factors may be explored.

A study exploring the disparity in access to digital resources in rural and regional areas found that many rural residents demonstrate boldness and self-assurance in online health information, despite facing challenges like knowledge of available resources, financial constraints, and technological sophistication.[42] Such findings emphasize the importance of context-specific interventions to bridge eHealth literacy gaps and suggest that future studies should consider these dynamics to develop more effective health communication strategies.

Interestingly, this study found no significant differences in eHL scores across education levels or occupation categories. While one might expect that individuals with higher education or professional occupations would demonstrate higher eHL, our findings challenge this common assumption. Previous literature has reported that individuals with higher levels of educational attainment tend to possess greater digital skills and are more likely to seek health information online.[8,43,44] Similarly, other studies indicate that the eHealth literacy score declines in individuals with lower educational status.[35,45] However, in our sample, participants with university and postgraduate degrees did not significantly outperform those with only high school education. Likewise, occupational status, whether employed, unemployed, or student, did not appear to influence eHL scores. This suggests that while formal education and employment may contribute to overall literacy, they may not be sufficient on their own to enhance eHealth literacy.

This outcome may point to the influence of other contributing factors, such as access to digital devices, the quality of internet connectivity, prior exposure to online technologies, and individual motivation to seek out health information.[46] For instance, Norman and Skinner highlight in their research that eHL encompasses various literacies beyond just traditional education, including digital, health, and information literacy.[8] Similarly, Xie suggests that older adults' eHL were influenced more by their experience with technology and health information, rather than their formal education alone.[47]

Given the increasing reliance on digital health resources, future research should consider examining these additional variables, such as digital engagement, frequency of internet use for health-related purposes, personal health status, and even attitudes toward technology, to better understand the multifaceted nature of eHealth literacy in diverse populations.

Strength of the study

This pioneering study in Rwanda provides invaluable insights into the eHL of dental patients in an urban private clinic, a population seldom explored in existing research. It sets a precedent for future research in this area, especially in Rwanda. The findings contribute significantly to the dental field by emphasizing the importance of targeted eHealth interventions and initiatives to improve eHL and, consequently, oral health outcomes.

Limitations of the study

The cross-sectional design of this study limits the ability to establish causal relationships between variables. Additionally, the use of eHEALS, which relies on self-reported data, reflects participants' perceived rather than actual eHL skills.

Conclusion

eHealth literacy is essential for enabling individuals to access and utilize health information in a digital world. This study shows the importance of assessing patients' ability to navigate digital platforms and interpret health-related content. Enhancing eHealth literacy can lead to making informed decisions, particularly for oral healthcare. The findings suggest the need for accessible and inclusive eHealth solutions that accommodate varying levels of digital proficiency. Strengthening access to accurate and relevant oral health information using digital tools can improve patient engagement and health outcomes. Future research shall explore possibilities to bridge digital literacy gaps and promote equitable access to health resources for dental patients.

Authors' contribution

NP, RG and MAA conceived the design of the study. NP, HJBA, SFX did data collection, analysis and interpretation. All authors contributed to the manuscript writing.

Conflict of interest

Authors of this article declare no conflict of interest.

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