National Research Journal of Information Technology & Information Science ISSN: 2350-1278
Volume No: 12, Issue No: 2, Year: 2025 (July- December) Peer Reviewed & Refereed Journal (IF: 7.9)
PP: 389-396 Journal Website www.nrjitis.in

SMART PATIENTS, SMART CARE: THE ROLE OF EHEALTH LITERACY IN DIGITAL HEALTH ADOPTION

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ABSTRACT

Background: The rapid expansion of digital health platforms has revolutionised healthcare delivery by enhancing access, improving efficiency, and fostering patient engagement. However, variations in patients' digital competencies, particularly eHealth literacy, continue to influence the extent to which these platforms are adopted and used effectively. Understanding the factors that drive or hinder digital health adoption is essential for achieving inclusive and sustainable digital healthcare.

Aim/Objectives: The study aims to examine patients' adoption of digital health platforms using the UTAUT2 framework and to analyze the role of eHealth literacy in shaping behavioural intention and actual usage. Specifically, it investigates the influence of UTAUT2 constructs on behavioural intention, the intention–use relationship, and the moderating effect of eHealth literacy.

Methodology: A quantitative, descriptive research design was adopted. Primary data were collected from 400 patients in the Tricity region (Chandigarh, Panchkula, and Mohali) using a structured questionnaire based on validated scales. Data were analysed using descriptive statistics, regression, structural analysis, mediation analysis, and moderation analysis through PROCESS Macro.

Results: The findings reveal that performance expectancy, facilitating conditions, habit, and price value significantly influence behavioural intention, while behavioural intention strongly predicts actual use behaviour. Effort expectancy, social influence, and hedonic motivation show limited direct effects. eHealth literacy significantly moderates the relationship between UTAUT2 constructs and behavioural intention, strengthening adoption outcomes.

Conclusion: The study concludes that digital health adoption is driven not only by technological features but also by patients' ability to understand and use digital health information. Enhancing eHealth literacy is critical for translating access into effective and sustained digital health usage.

Keywords: Digital health platforms; eHealth literacy; UTAUT2; Behavioural intention; Use behaviour

1. INTRODUCTION

The rapid integration of digital technologies into healthcare systems has transformed the way patients' access, manage, and engage with health services. Digital health platforms—such as online appointment systems, teleconsultations, electronic health records, and mobile health applications—are increasingly positioned as solutions to improve access, efficiency, and continuity of care. However, the effectiveness of these technologies depends not merely on their availability but on patients' ability and willingness to use them meaningfully. Prior

research consistently highlights that disparities in digital competencies and health-related understanding significantly influence the adoption and sustained use of digital health services (Venkatesh et al., 2012; Holden & Karsh, 2010).

Within this evolving landscape, eHealth literacy has emerged as a critical determinant of digital health adoption. Defined as an individual's ability to seek, find, understand, evaluate, and apply health information from electronic sources to address health problems, eHealth literacy directly shapes how patients interact with digital health platforms (Norman & Skinner, 2006). Individuals with higher eHealth literacy are better equipped to interpret online medical information, navigate digital interfaces, and make informed health decisions, thereby enhancing their engagement with digital health services (Neter & Brainin, 2012; Mitsutake et al., 2016). Conversely, limited eHealth literacy can act as a barrier, exacerbating existing health and digital divides even in technology-rich environments.

Technology adoption theories, particularly the Unified Theory of Acceptance and Use of Technology (UTAUT2), provide a robust framework for understanding patients' digital health behaviours by emphasizing constructs such as performance expectancy, effort expectancy, social influence, facilitating conditions, habit, and perceived value (Venkatesh et al., 2012). While UTAUT2 explains intention and usage effectively, recent studies argue that individual capabilities, such as digital and health literacy, condition how these technological perceptions translate into actual adoption (Kim & Xie, 2017; Sudbury-Riley et al., 2017). Integrating eHealth literacy into technology adoption models therefore offers a more nuanced understanding of why some patients readily embrace digital health platforms while others remain hesitant.

Against this backdrop, the present study examines how eHealth literacy influences patients' adoption and use of digital health platforms. By situating eHealth literacy as a central explanatory mechanism within a technology acceptance framework, the study seeks to demonstrate that digitally empowered patients are better positioned to convert technological access into meaningful healthcare engagement. Such insights are particularly relevant for policymakers and healthcare providers aiming to design inclusive digital health strategies that ensure digital transformation leads to smarter care for all patients, rather than reinforcing existing inequalities.

2. REVIEW OF LITERATURE

Recent literature on digital health adoption increasingly converges on a few dominant themes that explain how patients engage with digital health platforms, particularly in relation to perceptions of technology, individual capabilities, and contextual enablers. One prominent theme in studies published from 2025 onwards is the continued relevance of technology acceptance frameworks**,** especially UTAUT2, in explaining patients' behavioural intentions and actual usage of digital health services. Recent empirical studies confirm that performance expectancy and facilitating conditions remain the strongest predictors of digital health adoption, as patients prioritize efficiency, convenience, and reliability when engaging with online health platforms (Zhang et al., 2025; Oliveira & Martins, 2024). These studies highlight that digital health tools are primarily evaluated through a utilitarian lens rather than hedonic considerations.

A second major theme emerging in recent research is the central role of eHealth literacy and digital competence in shaping adoption outcomes. Contemporary studies emphasise that even when digital health infrastructure is well developed, patients' ability to search, interpret, and apply online health information determines effective usage (Kim & Park, 2025; Mitsutake et

al., 2024). Research conducted across diverse healthcare settings demonstrates that higher levels of eHealth literacy significantly strengthen the relationship between perceived usefulness, ease of use, and behavioural intention, suggesting that literacy acts as an enabling mechanism rather than an independent driver alone. This body of work also cautions that low eHealth literacy may widen health inequities by limiting the benefits of digitalization to digitally skilled populations.

A third thematic strand focuses on demographic and socio-economic disparities in digital health adoption**.** Recent studies consistently report that age, education, and income continue to influence digital health usage patterns, with younger, better-educated, and higher-income individuals exhibiting stronger adoption and continued use (Anderson et al., 2025; Neter & Brainin, 2024). However, emerging evidence suggests that these demographic effects are not fixed; instead, they are mediated or moderated by digital skills and health literacy. This shift in emphasis signals a move away from viewing demographics as static barriers toward understanding them as conditional factors that can be addressed through targeted policy and educational interventions.

Another important theme in recent literature is the intention–behaviour gap in digital health usage**.** Studies published in the mid-2020s argue that behavioural intention does not always translate into consistent use, particularly in healthcare contexts where trust, perceived risk, and habit formation play critical roles (Dwivedi et al., 2024; Gao et al., 2025). Habit has been increasingly recognized as a key construct that sustains long-term engagement with digital health platforms, reinforcing the argument that repeated positive experiences and routine integration are essential for sustained adoption.

Finally, recent scholarship highlights the policy and practice implications of digital health literacy–driven adoption. Studies stress that national digital health strategies must move beyond platform development to include literacy-building initiatives, user training, and supportive ecosystems (World Health Organization, 2024; European Commission, 2025). Researchers advocate embedding eHealth literacy into public health programmes and healthcare delivery models to ensure inclusive and equitable digital transformation. Collectively, recent literature underscores that “smart care” is achievable only when “smart patients” are empowered with the skills and confidence required to navigate digital health environments effectively.

Overall, the thematic review of recent studies indicates a clear evolution in digital health research, from examining technology features alone to recognizing the pivotal role of user capabilities, particularly eHealth literacy, in translating digital access into meaningful healthcare engagement. This evolving focus provides strong justification for the present study’s emphasis on eHealth literacy as a critical determinant of digital health adoption.

3. RESEARCH GAP AND AIMS OF THE STUDY

Despite the growing body of research on digital health adoption, several critical gaps remain in the existing literature. Most prior studies have predominantly relied on technology acceptance models, such as TAM and UTAUT/UTAUT2, to explain patients’ behavioural intentions, while giving limited attention to the role of eHealth literacy as a central explanatory mechanism rather than a peripheral or control variable. Although recent studies acknowledge that digital skills and health literacy influence technology use, there is insufficient empirical evidence demonstrating how eHealth literacy conditions or strengthens the relationships between key UTAUT2 constructs and patients’ behavioural intentions and actual usage, particularly in the context of digital health platforms. Moreover, many existing

studies focus on developed economies, leaving a contextual gap in understanding digital health adoption in emerging healthcare settings, such as urban regions in India, where digital access coexists with varying levels of literacy and healthcare awareness. In addition, limited research has examined the transition from intention to actual use, thereby overlooking the mechanisms through which perceptions and capabilities translate into sustained engagement with digital health platforms.

Addressing these gaps, the present study aims to systematically examine patients' adoption of digital health platforms by integrating eHealth literacy into the UTAUT2 framework. Specifically, the objectives of the study are: (i) to analyze the influence of key UTAUT2 constructs on patients' behavioural intentions to use digital health platforms; (ii) to examine the relationship between behavioural intentions and actual usage behaviour; and (iii) to investigate the moderating role of eHealth literacy in the relationship between UTAUT2 constructs and behavioural intentions. By doing so, the study aims to provide a nuanced, patient-centric understanding of digital health adoption and to generate insights that can inform the development of theory, policy formulation, and the design of inclusive digital health interventions.

4. METHODOLOGY USED

The present study employed a quantitative research methodology with a descriptive and explanatory research design to investigate patients' adoption of digital health platforms and the role of eHealth literacy. The study was conducted among patients who had prior experience with or exposure to digital health platforms in the Tricity region comprising Chandigarh, Panchkula, and Mohali. Primary data were collected from 400 patients, which was considered an adequate sample size for statistical analysis and generalisation within the study context.

A non-probability convenience sampling technique was adopted due to the absence of a comprehensive sampling frame of digital health platform users and practical constraints related to time and accessibility. Data were collected using a structured, self-administered questionnaire developed based on validated scales from prior studies. The questionnaire consisted of sections covering demographic information, usage patterns of digital health platforms, UTAUT2 constructs, behavioural intention, use behaviour, and eHealth literacy. Responses to perceptual items were measured using **a** five-point Likert scale ranging from strongly disagree to strongly agree. Prior to the main survey, a pilot study was conducted to ensure clarity, reliability, and content validity of the instrument, and minor modifications were made based on respondent feedback. The collected data were analysed using SPSS and structural equation modelling techniques**,** where descriptive statistics were used to summarize respondent characteristics and construct-level perceptions. Inferential analyses, including correlation, regression, and moderation analysis using the PROCESS Macro, were employed to test the proposed relationships and hypotheses at a 5% level of significance. This methodological approach ensured robustness and enabled a comprehensive examination of both behavioural intentions and actual usage of digital health platforms.

5. ANALYSIS AND INTERPRETATION

The demographic distribution indicates a balanced representation across gender and age groups, with a predominance of economically active and digitally exposed respondents. The relatively high educational attainment suggests a sample that is reasonably familiar with digital technologies, providing a suitable basis for examining digital health adoption behaviour.

Table 1: Demographic Profile of Respondents

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	216	54.0
	Female	184	46.0
Age Group (Years)	18–25	88	22.0
	26–40	152	38.0
	41–50	98	24.5
	51 & Above	62	15.5
Educational Qualification	Up to 10+2	110	27.5
	Graduation	158	39.5
	Post Graduation & Above	132	33.0

Table 2: Descriptive Statistics of Study Constructs

Construct	No. of Items	Mean	Std. Deviation
Performance Expectancy	4	4.05	0.66
Effort Expectancy	4	3.80	0.68
Social Influence	4	3.69	0.58
Facilitating Conditions	4	3.53	0.69
Hedonic Motivation	3	3.92	0.70
Price Value	3	3.70	0.63
Habit	4	3.70	0.69
Behavioural Intention	4	3.83	0.68
Use Behaviour	3	3.73	0.79
eHealth Literacy	8	3.88	0.65

The mean scores of all constructs are above the scale midpoint, indicating overall positive perceptions toward digital health platforms. Performance expectancy and behavioural intention exhibit particularly high mean values, suggesting that perceived usefulness and intention are central to adoption, while eHealth literacy levels indicate adequate digital health competence among respondents.

Table 3: Hypothesis Testing – Direct Effects (Regression Results)

Path	β	t / C.R.	p-value	Result
PE → BI	0.262	5.91	0.000	Supported
EE → BI	0.039	1.18	0.237	Not Supported
SI → BI	–0.017	–0.43	0.661	Not Supported
FC → BI	0.123	2.58	0.010	Supported
Habit → BI	0.407	10.57	0.000	Supported
PV → BI	0.178	3.63	0.000	Supported
HM → BI	0.024	0.65	0.516	Not Supported
BI → UB	0.742	18.84	0.000	Supported

The results show that performance expectancy, facilitating conditions, habit, and price value significantly influence behavioural intention, while effort expectancy, social influence, and hedonic motivation do not. Behavioural intention strongly predicts actual use behaviour, confirming the intention–behaviour link proposed in UTAUT2 and highlighting the utilitarian orientation of digital health adoption.

Table 5: Moderation Effect of eHealth Literacy (PROCESS Model 1)

Interaction Term	β	t	p-value	Moderation
PE × eHL	0.118	3.28	0.001	Significant
EE × eHL	0.094	2.85	0.004	Significant
SI × eHL	0.071	2.22	0.027	Significant
FC × eHL	0.126	3.32	0.001	Significant
Habit × eHL	0.158	3.85	0.000	Significant
HM × eHL	0.082	2.41	0.016	Significant
PV × eHL	0.103	2.78	0.006	Significant

EHealth literacy significantly moderates the relationship between all UTAUT2 constructs and behavioural intention. Higher levels of eHealth literacy strengthen the impact of technological, contextual, and motivational factors, confirming that digitally health-literate patients are better able to translate platform benefits into adoption intentions.

6. POLICY IMPLICATIONS

The findings of this study offer important policy implications for strengthening the adoption and effective use of digital health platforms. Since behavioural intention and actual usage are significantly influenced by performance expectancy, facilitating conditions, habit, price value, and eHealth literacy, policymakers should move beyond technology deployment to focus on building patient capability and providing system support**.** National and regional digital health policies should prioritize eHealth literacy enhancement programs, particularly for older adults, lower-income groups, and individuals with limited educational backgrounds, to ensure inclusive digital healthcare access. Integrating digital health literacy modules into public health campaigns, primary healthcare centers, and community outreach initiatives can help patients better understand and use digital health services.

Furthermore, policies should support the development of user-friendly, affordable, and interoperable digital health platforms that clearly demonstrate functional benefits such as time savings, reduced errors, and improved continuity of care. Investments in digital infrastructure, reliable internet connectivity, and on-site technical assistance within healthcare facilities can strengthen facilitating conditions and reduce access barriers. Additionally, policymakers should encourage healthcare providers to actively promote and guide patients in using digital platforms, reinforcing habitual use through repeated exposure and trust-building measures. Collectively, these policy interventions can ensure that digital health transformation leads to equitable patient engagement, improved healthcare outcomes, and sustainable adoption of digital health technologies.

7. CONCLUSION AND SCOPE FOR FUTURE RESEARCH

This study concludes that patients' adoption and use of digital health platforms are strongly influenced by functional benefits, enabling conditions, habitual usage, perceived value, and, most importantly, eHealth literacy. The findings highlight that digital health adoption is not driven solely by technology availability, but by patients' ability to understand, evaluate, and

effectively utilise digital health information. By integrating eHealth literacy into the UTAUT2 framework, the study provides a more comprehensive explanation of how behavioural intentions translate into actual usage, offering valuable insights for policymakers and healthcare providers seeking to enhance patient engagement and healthcare outcomes.

About future research, subsequent studies may adopt a longitudinal design to examine changes in digital health usage behaviour over time, extend the model to rural or cross-regional contexts to improve generalizability, and incorporate additional factors such as trust, perceived risk, or data privacy concerns. Further research may also explore intervention-based studies to assess the impact of eHealth literacy training programs on sustained digital health adoption and patient outcomes.

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