Internship Training at

IIHMR DELHI

A Study on Digital Health Literacy and Its Impact on Preventive Healthcare Utilization among Urban Population: A Systematic Review

by

Aditi Shukla

PG/24/006

Under the guidance of

Dr. Nishikant Bele

PGDM (Hospital and Health Management) 2024-26

International Institute of Health Management Research New Delhi

The certificate is awarded to

ADITI SHUKLA

in recognition of having successfully
completed his/her Internship
in the department of

Healthcare

and has successfully completed her Project on

A Study on Digital Health Literacy and Its Impact on Preventive Healthcare Utilization among Urban Population: A Systematic Review

3rd June, 2026

IIHMR Delhi

She comes across as a committed, sincere Cdiligent
person who has a strong drive C zeal for learning.

We wish her all the best for future endeavors

Dr. Nishikant bele
Associate Professor
IIHMR, DELHI

2

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Aditi Shukla student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at IIHMR ,Delhi from 16/03/2026 to 03/06/2026 . The Candidate has successfully carried out the project designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical. The Internship is in fulfillment of the course requirements.

I wish him all success in all his/her future endeavors.

Dr. Punit Yadav
Academic and student Affairs
IIHMR, New Delhi

Dr. Nishikant Bele
Associate Professor
Mentor
IIHMR, New Delhi

Certificate Of Approval

The following dissertation titled **"A Study on Digital Health Literacy and Its Impact on Preventive Healthcare Utilization among Urban Population: A Systematic Review"** at **"IIHMR, Delhi"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital s Health Management)** forwhich it hasbeen submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr. Ekta Saroha	
Dr. Mukul Rasi Raushan	
Dr. Shiv	

4

Certificate from Dissertation Advisory Committee

This is to certify that **Ms.Aditi Shukla,** a graduate student of the **PGDM (Hospital s Health Management)** has worked under our guidance and supervision. He/ She is submitting this dissertation titled titled "**A Study on Digital Health Literacy and Its Impact on Preventive Healthcare Utilization among Urban Population: A Systematic Review**" at "IIHMR, Delhi" in partial fulfillment of the requirements for the award of the **PGDM (Hospital s Health Management).**

This dissertation has therequisite standard and to thebest of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Institute Mentor Name,

Mentor Name Dr. Nishikant Bele

Designation, Asso. Prof.

Organization IIHMR DELHI

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

CERTIFICATE BY STUDENT

This is to certify that the dissertation **titled** "A Study on Digital Health Literacy and Its Impact on Preventive Healthcare Utilization among Urban Population: A Systematic Review" and submitted by Aditi Shukla Enrollment No. ...PG/24/006 under the supervision of Dr. Nishikant Bele. for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from 16/03/1026 to 03/06/2026 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Shukla

Signature

FEEDBACK FORM

Name of the Student: ADITI SHUKLA

Name of the Organisation in Which Dissertation Has Been Completed: IIHMR, Delhi

Area of Dissertation: Healthcare Management

Attendance: 100%

Objectives achieved: Yes

Deliverables: upto the mark

Strengths: Fast learner, Multi-talented

Suggestions for Improvement: work on Qualitative Analysis

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

Signature of the Officer-in-Charge/ Organisation Mentor
(Dissertation)

Date: 7-July-2026

Place: IIHMR DELHI

IIHMR DELHI

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH (IIHMR)

Plot No. 3, Sector 18A, Phase- II, Dwarka, New Delhi- 110075

Ph. +91-11-30418900, www.iihmrdelhi.edu.in

CERTIFICATE ON PLAGIARISM CHECK

Name of Student (in block letter)	Dr./Mr./Ms.: ADITI SHUKLA		
Enrollment/Roll No.	PG124/006	Batch Year	2024-26
Course Specialization (Choose one)	Hospital Management	Health Management ✓	Healthcare IT
Name of Guide/Supervisor	Dr./ Prof.: Dr. NISHIKANT BELE		
Title of the Dissertation/Summer Assignment	A Study on Digital Health Literacy and Its Impact on Preventive Healthcare Utilization among Urban Population: A Systematic Review.		
Plagiarism detect software used	"TURNITIN"		
Similar contents acceptable (%)	Up to 15 Percent as per policy		
Total words and % of similar contents Identified	12247 WORDS, % of SIMILAR CONTENT = 4%, AI = 0 %		
Date of validation (DD/MM/YYYY)	__/__/____		

Guide/Supervisor

Name: Dr. NISHIKANT BELE

Signature:

Student

Name: ADITI SHUKLA

Signature: Shukla

Report checked by

Institute Librarian

Signature:
Date:
Library Seal

Dean (Academics and Student Affairs)

Signature:
Date:
(Seal)

A.2 About the Organization

The International Institute of Health Management Research (IIHMR),Delhi is quality institution fully dedicated to education, training, research, and consultancy in the field of health management. It was established with the aim of strengthening healthcare system through skilled professionals, the institute has also played a significant role in developing managerial capacity in the healthcare sector of India.

IIHMR Delhi is part of the IIHMR group, which has a strong presence in health management education and research. The institution focuses mainly on creating professionals who can effectively manage healthcare organizations and contribute to improving public health systems. It offers postgraduate and doctoral programs in hospital and health management and a range of training and capacity- building activities.

The institute's interdisciplinary approach is known to combine management principles with public health.

The curriculum is designed to impart the students with theoretical knowledge and practical exposure. Focus is given to real world learning through internships, field visits, research projects and case based teaching methods. This helps students to

understand the complexities of health care systems and to develop problem-solving skills.

IIHMR Delhi also actively engages in research and consultancy projects in collaboration with government bodies, international organizations, and private sector stakeholders. These projects focus on areas such as health system strengthening, health financing, healthcare quality and policy development. Through such initiatives, the institute contributes to evidence- based decision- making in the healthcare sector.

Vision of IIHMR Delhi is to be a globally recognized institution for excellence in health management education, research and training. Its mission is to develop competent professionals and generate knowledge that can improve the performance of healthcare system. The institute emphasizes values such as integrity, professionalism, innovation and commitment to public health.

In terms of infrastructure IIHMR, Delhi provides a conductive learning environment with well equipped classrooms, library resources, and access to digital learning platforms. The institute also helps students in gaining practical exposure through

internships in reputed healthcare organizations, enabling them to apply their academic knowledge in real-world settings.

As a student of the International Institute of Health Management Research (IIHMR), Delhi, doing a dissertation is an important part of my course. This study on **"A Study on Digital Health Literacy and Its Impact on Preventive Healthcare Utilization among Urban Population: A Systematic Review"** has been done as part of that requirement. During the program I have learned about different aspects of the healthcare system, which helped me to understand this topic better. It also helped in looking at how health insurance coverage is different across various socio-economic groups and regions in India.

A.3.1 Acknowledgement

I express my sincere thanks to my mentor Dr. Nishikant Bele for his continuous guidance and support with constructive feedback throughout the course of this dissertation. She was able to identify the gaps and push for clearer thinking. It made the process more rigorous and challenging at times but ultimately more meaningful.

I am also thankful to the faculty members of International Institute of Health

Management Research (IIHMR), Delhi for providing the academic support for this study. The exposure to analytical tools and research-oriented thinking has been important in shaping this work.

Working on secondary data, There were phases of confusion especially while understanding variables and analysis and I am thankful for the support received during those stages.

I would also like to acknowledge my peers for their discussions and shared learning throughout the process. Finally, I am deeply thankful to my family for their constant encouragement and support.

Table of Contents

Chapter	Page No.
Chapter 1: Introduction	**15-20**
1.1 Background of the Study	16-18
1.2 Need of the Study	18-19
1.3 Rationale of the Study	19
1.4 Research Question	19-20
1.5 Objectives of the Study	20
Chapter 2: Literature Review	**20-28**
2.1 Introduction	20-22

2.2 Review of Literature	23-28
Chapter 3: Thematic Summary of Literature	**2G-32**
3.1 Theme 1: Digital Health Literacy and Preventive Healthcare Utilization	29
3.2 Theme 2: Role of Digital Platforms in Health Information Seeking and Health Awareness	29-30
3.3 Theme 3: Digital Health Literacy During COVID-19 Pandemic	30
3.4 Theme 4: Barriers to Digital Health Literacy and Healthcare Utilization	30-31
3.5 Theme 5: Influence of Socioeconomic and Demographic Factors	31
3.6 Theme 6: Telemedicine and Healthcare Accessibility	31-32
3.7 Theme 7: Need for Digital Health Literacy Interventions	32
Chapter 4: Methodology	**33-42**
4.1 Study Design	33
4.2 Eligibility Criteria	33-34
4.3 Method of Data Collection	34-35
4.4 Study Selection Process	35
4.5 PRISMA Flow Diagram	35-36
4.6 Data Extraction Process	36-38
4.7 Quality Assessment	38-40
4.8 Data Synthesis Method (Thematic Analysis)	40-42
4.9 Justification for Thematic Analysis	42
Chapter 5: Results	**42-68**
5.1 PRISMA Results	42-45
5.2 Characteristics of Included Studies	45-59
5.3 Quality Assessment Results of Included Studies	59-62
5.4 Thematic Analysis Results	62-68

Chapter 6: Discussion	**68-74**
6.1 Discussion of Findings	68-69
6.2 Comparison with Previous Studies	69-70
6.3 Public Health Implications	70-71
6.4 Indian Context	71-73
6.5 Strengths of the Review	73
6.6 Limitations of the Review	74
Chapter 7: Conclusion and Recommendations	**74-80**
7.1 Conclusion	75–76
7.2 Recommendations	76–79
7.3 Final statement	79-80

List of Figures

Figure No.	Title	Page No.
Figure 4.5	PRISMA Flow Diagram Showing Study Selection Process	30

List of Tables

Table No.	Title	Page No.
Table 3	Summary of Themes Identified from Literature	33
Table 4.6	Data Extraction Form	38
Table 4.7	Quality Rating Criteria for Included Studies	40
Table 5.1	Study Selection and Exclusion Summary	45
Table 5.2	Characteristics of Included Studies	45-59
Table 5.3	Quality Assessment Results of Included Studies	59-62
Table 5.4	Summary of Thematic Analysis Results	67-68

Chapter 1: Introduction

The digital transformation in healthcare has greatly altered how people find, understand and use health information. Healthcare delivery systems are becoming more technology-driven with increasing penetration of smartphones, internet services, telemedicine platforms, mobile health applications and online consultation services. Digital health literacy means the capacity of the individual to seek, understand, evaluate and use health information from digital sources to make informed health care decisions. It is an extension of traditional health literacy that combines knowledge about health with skills to use digital technologies.

Better internet connectivity, improved educational status and greater exposure to technological advancement have led to a rapid growth in the use of digital technologies for health purposes in urban populations. Urban residents look for online sources on disease prevention, vaccination, fitness, nutrition, mental health and routine health check-ups. However, even though there has been an increase in access to digital technologies, differences exist in the ability to understand and use digital health information in an effective manner.

Use of preventive health care means activities that are done to prevent diseases and to promote health. They include regular health screening, immunizations, early diagnosis, health promotion, and regular medical visits. Digital health literacy is an important factor in the development of preventive healthcare practices. People with adequate skills of digital health literacy are more likely to search for reliable health information, participate in preventive health practices and timely medical intervention.

Globally and in India, multiple studies show a growing role for digital health literacy in improving healthcare outcomes. The COVID-19 pandemic has led to a surge in

healthcare information seeking and increased dependence on digital platforms. But the biggest concerns are misinformation, the lack of skills to critically evaluate this and unequal access to digital resources.

The correlation of digital health literacy and preventive healthcare utilization among urban population is crucial for healthcare planning, policy making and designing targeted interventions .The aim of the study is to review the existing evidence of digital health literacy and its impact on the utilization of preventive health care among urban population via secondary research.

1.1 Background of the Study

The digital health literacy has become an important determinant of healthcare utilization in the today's healthcare ecosystem . Digital technologies have evolved exponentially and have revolutionized health delivery systems worldwide. Increasing numbers of people are looking for health care information and services on digital platforms like websites, social media, mobile apps, online health portals and telemedicine services. Digital health literacy is the capacity to search, comprehend, evaluate and apply health information from the Internet to enhance health outcomes.

According to the World Health Organization, digital health is a key enabler of universal health coverage and patient-centered care. With the increasing use of electronic health records, mobile health applications, wearable devices and teleconsultation platforms, digital competency is becoming an important requirement for effective healthcare access. In urban areas, the technological infrastructure is relatively better developed, so people have a higher chance to use the digital healthcare services. However, the level of

digital health literacy differs greatly between individuals, depending on their education, age, socioeconomic status and exposure to technology.

Preventive healthcare utilization is the utilization of healthcare services for the purpose of preventing diseases or detecting illnesses at an early stage. These include vaccination, cancer screening, blood pressure monitoring, diabetes screening, routine health check-ups, promotion of physical activity, nutritional counseling and mental health awareness programsPrevention is an important component of health care to reduce the burden of disease, enhance quality of life, and reduce the cost of health care.

Digital health literacy affects the use of preventive health services through its association with health awareness, decision-making capacity and health-seeking behaviors. People with a higher level of digital health literacy are able to identify reliable health information, know ways to prevent diseases and take a more active part in preventive health practices. On the other hand, low digital health literacy can lead to misinformation, health care seeking delay, poor preventive practices and poor engagement with health care.

The COVID-19 pandemic has sped up the adoption of digital healthcare systems around the world. The pandemic highlighted the significance of digital health literacy in obtaining authentic health information and utilizing preventive health services efficiently as online health consultations, vaccine registration portals, telemedicine services and digital public health campaigns became an indispensable tool.
India has experienced a swift growth of digital healthcare initiatives including the Ayushman Bharat Digital Mission, eSanjeevani telemedicine services, Aarogya Setu app, and other digital health interventions at the state level. These digital platforms have

been adopted more readily by urban populations. However, access to, understanding of and use of digital health information still vary greatly.

Previous literature showed that people with a higher level of digital health literacy show better preventive healthcare use, healthier lifestyle and higher engagement in health promotion activities. However, studies also point to barriers such as digital divide, misinformation, language barriers, limited technological skills, and trust issues in online information sources.

Thus, the effect of digital health literacy on preventive healthcare utilization in urban populations needs to be evaluated to identify the gaps and develop strategies to improve the healthcare awareness and accessibility. This secondary research study aims to synthesize the available evidence on the relationship between digital health literacy and the use of preventive health care.

1.2 Need of the Study

The increasing access to the internet and technological advancement is increasing the utilization of digital health services in urban areas. Despite improved access to digital health information, variations in digital health literacy continue to influence the ability of individuals to understand and utilize healthcare information effectively. Low digital health literacy may negatively impact on utilization of preventive health care including delayed diagnosis, poor health behaviors and increased disease burden.

There is a lack of consolidated evidence in the Indian urban setting on the association of digital health literacy and utilization of preventive healthcare. Research is spread across various populations and health care settings. Healthcare professionals, policymakers and public health organizations need to understand this association in order to design interventions to improve digital health education and preventive healthcare practices.

The study will help to identify the role of digital health literacy in influencing preventive healthcare utilization and to provide evidence for strengthening digital health promotion strategies in urban settings.

1.3 Rationale for the Study

Digital healthcare systems are rapidly expanding in urban areas and digital health literacy is an important determinant of healthcare utilization. Urban populations have better access to digital technologies, but there remain disparities in the ability to understand and use digital health information.

Recent studies have shown that digital health literacy has an impact on preventive health care behaviors such as vaccination, health screening and routine health check-ups. However, synthesized evidence on the effect of digital health literacy on preventive health care utilization in urban communities in the Indian context is scarce.

To fill this gap, the present review seeks to synthesize the extant literature and identify patterns, determinants, barriers, and outcomes related to digital health literacy and the utilization of preventive healthcare. The findings may help policymakers, healthcare administrators and public health professionals in designing targeted interventions to increase digital health awareness and preventive healthcare engagement.

1.4 Research Question:

PEOT Framework

- Population (P): Urban population;
- Exposure (E): Digital health literacy

• Outcome (O): Use of preventive health care

• Time (T): Studies published in the period 2018–2026

Research Question- How does digital health literacy affect the use of preventive health care services among urban populations?

1.5 Objectives of the Study

Primary Objective-

To study the effect of digital health literacy on preventive health care utilization in urban populations using secondary research.

Secondary Objectives-

1. To determine factors associated with digital health literacy in urban populations.

2 To identify barriers for digital health literacy and preventive healthcare use.

3. To assess the role of digital platforms in promoting behavioural changes for health prevention.

4. To identify strategies suggested in the literature to improve digital health literacy.

Chapter 2: Literature Review

2.1 Introduction:

The health sector worldwide has been transformed by the rapid rise of digital technologies. New opportunities have appeared to access health information, to disseminate health awareness, and to use improved health services. The ability to access, comprehend, assess and apply health information available through digital platforms has become a critical determinant of individuals' eHealth literacy or digital

health literacy. With the rise in internet penetration, smartphone usage, telemedicine services, mobile health applications and online healthcare resources, people are more and more dependent on digital sources for health-related decisions. Therefore, digital health literacy has been recognized as an important determinant of access to healthcare, health-seeking behavior, and utilization of preventive healthcare.

Preventive health care refers to the use of health care services and practices aimed at disease prevention, health promotion and early detection of medical conditions. Services include routine health screenings, immunization, health check-ups, lifestyle modification programs, nutritional counseling and disease prevention initiatives. Using preventive health services reduces sickness and death, improves the quality of life, and lowers the cost of health care. However, the degree of preventive healthcare practice of individuals is usually determined by their awareness, availability of information and their capacity to accurately understand health related knowledge.

In urban populations with relatively well-developed digital infrastructure and internet accessibility, digital platforms have become a primary source of health information. Urban residents often access information on disease prevention, fitness, nutrition, mental health, vaccination and health care services through websites, social media platforms, online health portals and mobile applications. Despite these benefits, inequities in digital health literacy persist due to variations in educational status, socioeconomic conditions, age, technological skills, and access to reliable internet services. Low digital health literacy may prevent individuals from distinguishing between reliable health information and misinformation, which can impact their health care decisions and preventive health behavior.

Previous studies have demonstrated that high digital health literacy is positively correlated with participation in preventive health behaviors, healthcare decision-making,

use of telemedicine services, and improved health outcomes . Conversely, low digital health literacy has been associated with poor health awareness, low healthcare engagement and participation in preventive health programs, and vulnerability to misinformation . The COVID-19 pandemic highlighted the relevance of digital health literacy, as people increasingly relied on digital platforms to access healthcare information, register for vaccinations, access teleconsultation services, and receive public health guidance .

Research on the determinants and barriers of digital health literacy, its impact on healthcare utilization, its role in disease prevention, and its influence on health behaviors is increasing . Research conducted in different countries and population groups has examined the relationship between digital literacy and health outcomes , and systematic reviews have compiled evidence on the importance of digital competencies in current health care systems . However, despite the increasing body of research available, there is still a need to synthesize the evidence focusing on the impact of digital health literacy on the preventive healthcare utilization in urban populations.

Therefore, the purpose of this literature review is to critically analyze and synthesize the existing research on digital health literacy and its impact on the use of preventive health care services . This review includes empirical studies, systematic reviews, conceptual frameworks and public health reports to provide a comprehensive understanding of the existing evidence . This review aims to bring together findings from different contexts and populations to identify the main themes, determinants, barriers, and facilitators of digital health literacy and its effect on preventive healthcare behaviors. The findings of this review will add to the evidence on the role of digital health literacy in improving the uptake of preventive health services and will inform future public health interventions and policy development and research.

2.2 Review of Literature

Most relevant to this study, a positive association between digital health literacy and the use of preventive healthcare has been found in several studies among the urban population. Norman and Skinner stated that people with higher eHealth literacy were more able to understand health information on the Internet and had better healthcare decision-making abilities [1]. Their results developed the conceptual framework for digital health literacy and highlighted its importance in health promotion.

Van der Vaart and Drossaert found that people with higher digital health literacy were more likely to take part in preventive health behaviors such as vaccination, health screening, and healthy lifestyle practices [2]. The study emphasized the importance of digital literacy in empowering users to critically assess online information and make informed decisions about their healthcare. Paige et al. showed that digital health literacy had a significant impact on patient engagement and self-management behaviors in adults using online healthcare resources [3]. The study highlighted that people with sufficient digital competencies were more likely to engage in preventive health activities.

Kim and Xie systematically reviewed the literature and found that eHealth literacy was associated with better health outcomes, medication adherence, preventive healthcare utilization, and patient empowerment [4]. Their review states that digital literacy improves the communication between the patients and healthcare providers.

The importance of digital health literacy has been further strengthened by studies during the COVID-19 pandemic. Dadaczynski et al. found that those with higher digital health literacy were able to access reliable COVID-19 information and adopt preventive

measures such as vaccination, hand hygiene and social distancing [5]. Similarly, Okan et al. showed that digital health literacy decreased susceptibility to misinformation and increased preventive health behaviors during the pandemic [6].

Similar results were found also in urban populations of developing countries. Research among Chesser et al. found that people with higher eHealth literacy were more apt to use telemedicine services and preventive health care resources effectively [7]. The study also identified gaps in digital literacy among older adults and low-income populations.

India experienced a large boost in digital healthcare adoption following the launch of national digital health programs. Sharma et al. reported that urban inhabitants with good educational background and digital skills were more likely to seek online health platforms for preventive healthcare consultations [8]. They found that digital literacy affected awareness on routine health screenings and vaccination.

Another Indian study by Singh et al. ound that urban youth often relied on online health information for fitness, nutrition and disease prevention advice [9]. But the study found concerns about misinformation and the inability to assess the credibility of online sources.

Gupta et al. found a positive association between digital health literacy and health-seeking behavior and preventive healthcare utilization among working urban adults [10]. Higher digital literacy was linked with higher participation in annual health check-ups and lifestyle modification programs.

Several studies have also focused on barriers related to digital health literacy . Stellefson et al., identified challenges such as lack of adequate technological skills, poor internet accessibility, and low confidence in evaluating online health information [11]. These barriers were found to reduce preventive health care use.

Levin-Zamir et al. reported significant differences in digital health literacy levels according to socioeconomic status [12]. Lower levels of education and income were associated with less access to digital health resources and preventive healthcare services. A systematic review by Diviani et al. emphasized that misinformation on digital platforms negatively affects healthcare decision-making and preventive practices [13]. The review highlighted the need to strengthen digital health education programs.

Studies have shown that age-related digital barriers affect the use of preventive healthcare by older adults. Xie [14] found that older people with low digital skills had problems accessing online health information and telehealth services. Jacobs et al. have found similar results, indicating the need for targeted interventions to improve the older adults' digital health literacy [15]. Studies among university students and young adults have suggested relatively high levels of digital health literacy. Montagni et al. [16] reported that younger people search for health information using social media and online platforms, but they find it difficult to distinguish trustworthy from untrustworthy sources. The study revealed that digital literacy was important.

Bautista [17] found that trust in online health information was a significant predictor of preventive health care behaviors. Trust in digital platforms for health was associated with a higher likelihood of practising disease prevention and vaccination.
The association of digital health literacy with prevention of chronic diseases has been studied. Mitsutake et al. reported that eHealth literacy was positively associated with adherence to preventive practices for the management of hypertension and diabetes [18]. Neter and Brainin also found similar results that digital literacy predicted a healthy lifestyle [19].

Mackert et al. found that digital health literacy interventions in public health promotion increased awareness of preventive healthcare services and rates of participation in the

healthcare [20]. They recommended that educational programs for public health should include information about digital health.

Studies on women's health found digital health literacy has a positive effect on maternal health care utilization, vaccination awareness and reproductive health practices [21]. Tubaishat and Habiballah [22] found that women who used online health information were more likely to participate in preventive screening programs.

Digital health literacy was also suggested to be important in research with healthcare professionals. Chan and Kaufman [23] found that healthcare workers with higher digital competencies were more successful in guiding patients towards the use of preventive healthcare.

Unequal access to technology is a persistent problem identified in digital divide research. Robinson et al. found that financial and infrastructure barriers contributed to low digital healthcare engagement among marginalized populations [24].Similar findings were reported by Viswanath et al. and communication inequalities in accessing digital health were suggested [25].

Park et al. found that mobile health applications improved the accessibility of health information and the preventive health care behaviors in urban populations [26].Use of wearable technologies and fitness apps was associated with better health monitoring and lifestyle changes.

Stellefson et al. found that the community-based digital literacy programs can increase the use of preventive health care and reduce health disparities [27]. Educational interventions improved [people's] ability to use online health resources effectively. WHO reports and public health databases have recently provided evidence that digital health literacy has become a major determinant of healthcare accessibility and preventive health engagement globally [28]. As healthcare systems become more and

more digital, people need to have sufficient digital skills in order to use the healthcare services.

Sørensen et al. (2012) published a comprehensive systematic review "Health Literacy and Public Health: A Systematic Review and Integration of Definitions and Models" which reviewed the current concepts, definitions and theoretical models of health literacy and its implications on the use of health care and public health outcomes. The review was based on evidence from a range of international studies and incorporated different health literacy frameworks into a single conceptual model.

They identified health literacy as a key factor in accessing health care, preventing disease and promoting health. Their results indicated that higher health literacy was linked with improved access to healthcare services, comprehension of health information, utilization of preventive healthcare, and informed health decision-making. The study also highlighted that health literacy is shaped by personal, social and environmental factors and is an important factor in reducing health inequalities. In an integrated model of the authors, better literacy was demonstrated to strengthen a person's capacity to access, understand, evaluate, and use health information to sustain and enhance health. The authors concluded that improving health literacy should be considered an important public health priority as it is associated with better utilization of preventive healthcare, better health outcomes and increased participation in health promotion activities. This study is particularly relevant to the present review, because digital health literacy can be viewed as an extension of health literacy in the digital healthcare environment, and hence impacts the use of preventive healthcare among urban populations.[29]

Banna et al.(2020) conducted a cross-sectional study to determine the association between digital health literacy and preventive health behavior among adults. The study

investigated the influence of the ability to locate, appraise and apply digital health information on health-promoting behaviors and preventive health care practices. Data on digital health literacy levels, health information-seeking behaviors and engagement in preventive health activities were collected from 1,087 respondents through structured online questionnaires. The results showed a significant positive relationship between digital health literacy and healthy lifestyle behaviors. Participants with higher digital health literacy were more likely to search for credible online health information, to engage in healthy dietary practices, to exercise regularly and to use preventive health care services. The study also found that digitally literate people were more knowledgeable about the prevention of diseases and were more proactive in taking care of their health. In addition, participants with sufficient digital health literacy reported higher confidence to judge the credibility of online health information, which reduced their vulnerability to misinformation. The authors concluded that digital health literacy is an important predictor of preventive healthcare utilization and health-promoting behaviors. They suggested the adoption of digital health literacy programs for health education and promotion of preventive health care. This study is of high relevance to the current systematic review as it provides strong evidence in favor of digital health literacy in improving the utilization of preventive healthcare.[30]

Overall, the reviewed studies show a strong positive correlation of digital health literacy and preventive healthcare utilization. The findings show a correlation between higher levels of digital literacy and higher rates of participation in preventive healthcare services, health awareness, healthcare decision-making, and healthy lifestyle practices. There are, however, challenges including misinformation, the digital divide, socioeconomic disparities, and limited technological skills that impact equitable healthcare access.

Chapter 3: Thematic Summary of Literature

Thematic Summary of the Literature The reviewed literature indicates that digital health literacy has a significant impact on urban dwellers' health care behaviours, access to health care and use of preventive health care. Some common themes emerged from the analysis of the selected 30 studies that explain the relationship between digital health literacy and preventive healthcare practices.

3.1 Theme 1: Digital Health Literacy and Preventive Healthcare Utilization

A second important theme in the literature is a positive association between digital health literacy and the use of preventive health care. Studies have shown that people with higher digital health literacy are more likely to engage in preventive health behaviors such as routine health examinations, vaccination programs, health screening and disease prevention activities.Norman and Skinner laid the conceptual groundwork for eHealth literacy, emphasizing the significance of digital competencies in health-related decision making [1]. Similarly, Van der Vaart and Drossaert found that people who were digitally literate were more engaged in preventive healthcare services and health-promoting behaviors [2]. Studies by Gupta et al. and Sharma et al. further suggested that urban residents with sufficient digital health literacy were more likely to use online healthcare platforms and participate in preventive healthcare consultations. Overall, evidence suggests that digital health literacy facilitates informed healthcare decisions and increases the use of preventive healthcare services.

3.2 Theme 2: Role of Digital Platforms in Health Information Seeking and Health Awareness

The rise in the use of digital platforms for seeking health information was another important theme found in the literature. Studies have shown that urban populations

often use websites, social media, mobile health applications, online health portals, and telemedicine platforms to seek information on disease prevention, nutrition, fitness, mental health, and healthcare services . Paige et al. [3] stressed that people with sufficient digital literacy had the ability to better use online healthcare resources and participate in self-management behavior Msontagni et al. found that the university students often used digital platforms to seek health information, but faced the problem of credibility of information [16]. Results show that digital health literacy enhances the ability of people to obtain and understand health information, which further enhances health consciousness and facilitates preventive behavior.

3.3 Theme 3: Digital Health Literacy During the COVID-19 Pandemic

The COVID-19 pandemic has highlighted the role of digital health literacy for healthcare access and disease prevention. Several studies have reported that people increasingly used digital platforms to obtain information regarding COVID-19, vaccination, preventive measures and telehealth services. According to a study by Dadaczynski et al. [5], digital health literacy was positively associated with the uptake of preventive measures, such as vaccination, hand hygiene, mask use and social distancing. Similarly, Okan et al. showed that digital health literacy decreased susceptibility to misinformation and increased preventive health behaviors during the pandemic [6].These studies indicate that digital health literacy was critical in helping people to access credible health information and respond appropriately during public health emergencies.

3.4 Theme 4: Barriers to Digital Health Literacy and Healthcare Utilization

A number of studies have identified barriers that negatively impact digital health literacy and the use of preventive healthcare. Common barriers included lack of technological skills, poor access to the internet, lack of confidence in assessing online health information, language barriers and low educational attainment. Stellefson et al. determined that individuals' ability to effectively use online health resources was limited by inadequate digital skills and poor internet access [11]. Xie found that older adults often reported difficulties in gaining access to and navigating digital healthcare platforms due to limited technological competence [14]. The unequal access to digital healthcare resources was also identified as a reason for socioeconomic inequalities by Robinson et al. [24]. The results suggest that inequalities in the use of equitable health care services are present even in times of increasing digitalization.

3.5 Theme 5: Influence of Socioeconomic and Demographic Factors

The literature consistently revealed that levels of digital health literacy are significantly associated with demographic and socioeconomic factors.The determinants of digital health literacy were often factors like educational status, income, age, occupation, and internet accessibility. Levin-Zamir and Bertschi [12] discovered that individuals with higher education and socioeconomic status possessed greater digital health literacy as well as increased involvement in preventive healthcare practices. Older adults, low-income groups and marginalized populations generally had lower levels of digital literacy and healthcare utilization. These findings suggest that the social determinants are significant in influencing people's ability to access and use digital health information effectively.

3.6 Theme 6: Digital Health Literacy, Telemedicine, and Healthcare Accessibility

Another key theme was the growth of telemedicine and digital healthcare services. Research has shown that higher digital health literacy levels were associated with greater use of telemedicine platforms, online consultation, electronic health services, and mobile health applications [13 , 14]. Chesser et al. said that the digital literate were more comfortable to use telemedicine services and access healthcare resources online [7]. Park and Kwon also reported that mobile health technologies improved the accessibility of preventive healthcare information and the uptake of healthier lifestyle behaviors [26]. The literature shows that digital health literacy is an important facilitator of healthcare access in increasingly technology-driven healthcare systems.

3.7 Theme 7: Need for Digital Health Literacy Interventions

Across the studies reviewed, a common recommendation was that interventions are needed to improve digital health literacy. The importance of digital health education programs, community awareness initiatives, and public health campaigns aimed at strengthening individuals' digital competencies was emphasized by several researchers . Mackert et al. found that health literacy interventions resulted in enhanced awareness of preventive health care services and higher healthcare participation [20]. Jacobs et al. [15] proposed targeted eHealth literacy interventions for vulnerable populations, especially for older adults and those with limited technological skills. Improving digital health literacy was also emphasized as a priority in WHO's Global Strategy on Digital Health to improve access to healthcare and health outcomes [28]. These findings highlight the need for policy and community interventions to improve digital health literacy and reduce healthcare disparities.

Summary of Themes

Theme	Key Findings
Digital Health Literacy and Preventive Healthcare Utilization	Higher literacy associated with greater use of preventive healthcare services.
Health Information Seeking Behavior	Digital platforms improve health awareness and decision-making.
COVID-19 and Digital Health Literacy	Improved access to reliable information and preventive behaviors.
Barriers to Digital Health Literacy	Technology access, education, age, and internet availability affect utilization.
Socioeconomic Determinants	Education, income, and social status influence digital health literacy levels.
Telemedicine and Healthcare Accessibility	Digital literacy facilitates utilization of telehealth services.
Digital Health Literacy Interventions	Education and awareness programs improve healthcare engagement.

Table: 3

Chapter 4: Methodology:

4.1 Study Design-

Systematic Review based on PRISMA (2020).

4.2 Eligibility Criteria:

Inclusion Criteria

1. Studied published between 2018 and 2026
2. Studies available in English language
3. Studies focusing on digital health literacy and preventive healthcare utilization.

4. Studies conducted among urban populations.
5. Peer-reviewed articles, government reports, WHO reports, and Systematic reviews.

Exclusion Criteria

1. Studies not available in full text.
2. Editorials, commentaries, and opinion articles.
3. Duplicate studies.

4.3 Method of Data Collection

Data is collected from secondary sources including:

- PubMed
- Google Scholar
- Scopus
- WHO reports
- Government health databases
- Research journals
- NFHS reports
- Digital health policy documents

Relevant studies are identified using keywords such as:

- Digital health literacy

- eHealth literacy
- Preventive healthcare
- Urban population
- Health information technology
- Preventive health utilization

Data extraction is performed using a predefined data extraction form including author name, year, study population, methodology, key findings, and conclusions.

4.4 Study Selection Process

The study selection process for this systematic review was carried out in accordance with the PRISMA 2020 guidelines . Relevant studies published between 2016 and 2026 were searched in electronic databases like PubMed, Google Scholar, Scopus, and ScienceDirect.

All studies retrieved were imported and duplicate records were removed. The remaining articles were then screened by their title and abstract for relevance to the study topic. Full-text articles of potentially relevant studies were retrieved for review. Eligibility screening was a comprehensive assessment of full-text articles for their suitability for inclusion in the review. Studies that met the pre-specified criteria for eligibility were included in the final review for qualitative synthesis and thematic analysis.

The process of identification, screening, eligibility assessment, and final inclusion of studies was summarized using the PRISMA flow diagram.

4.5 PRISMA Flow Diagram

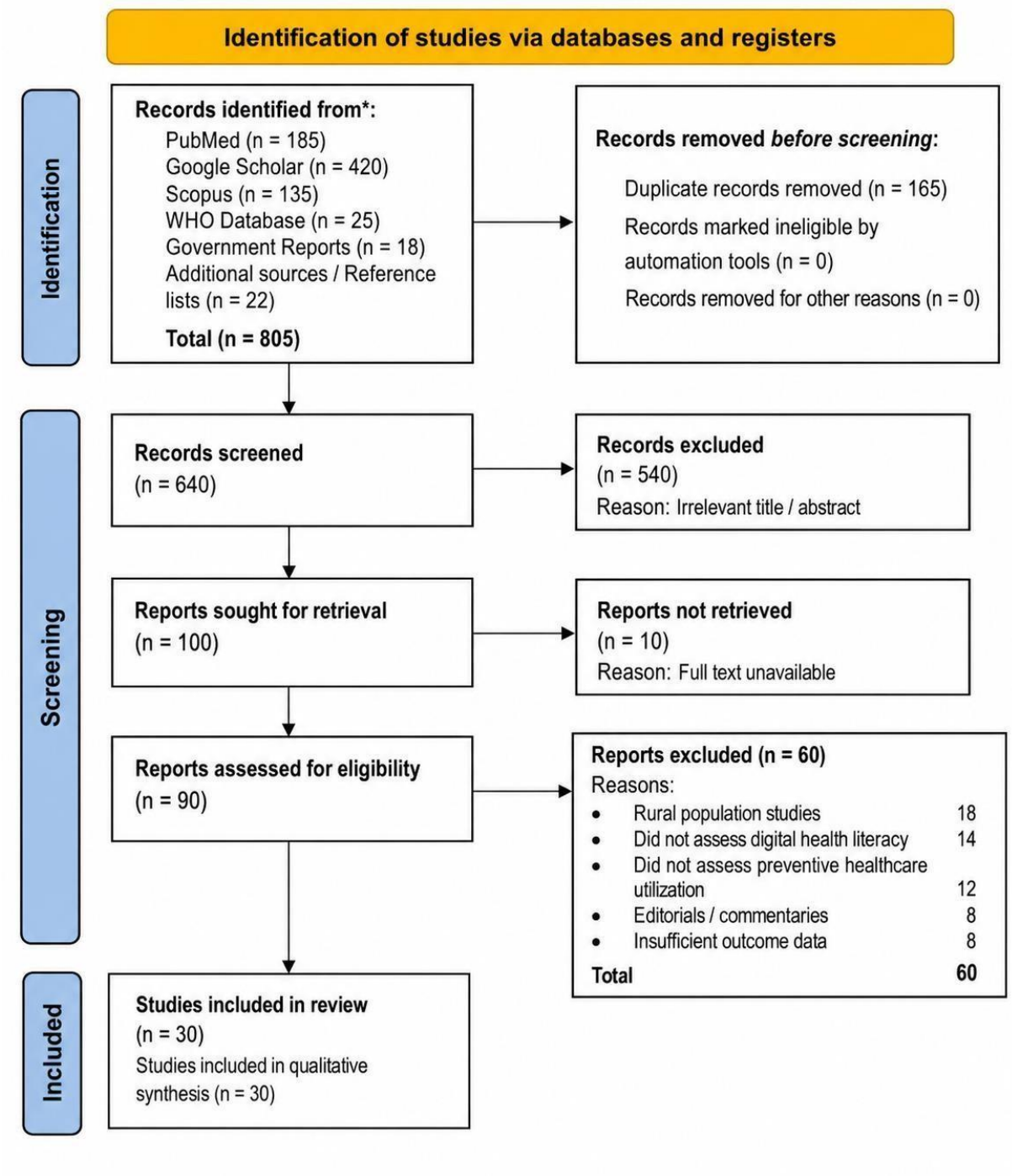


Diagram: 4.5

4.6 Data Extraction Process

We extracted the data using a data extraction form that we developed specifically for this review. After screening according to the PRISMA criteria, to identify and select the

eligible studies, the relevant information was systematically extracted and recorded from each included study. The aim of data extraction is to achieve consistency, minimise errors and enable comparison between studies.

The extracted information included:

- Author(s) and year of publication
- Country/region where the study was conducted
- Study title
- Study objectives
- Study design
- Study setting
- Population characteristics
- Sample size
- Digital health literacy measures
- Preventive healthcare utilization outcomes
- Key findings
- Conclusions
- Limitations
- DOI/PMID

A structured Microsoft Excel spreadsheet is used to organize and manage the extracted data. Studies are reviewed independently according to the predefined inclusion and exclusion criteria. Relevant information was categorized under common themes such as

digital health literacy, preventive healthcare utilization, telemedicine usage, vaccination behavior, health information-seeking practices, barriers to healthcare access, and health promotion activities.

After extraction, the data were cross-checked for completeness and accuracy. Any discrepancies arising during the extraction process were resolved by examining the original papers carefully. Narrative synthesis and thematic analysis were conducted using the final data extraction table.

Data Extraction Form-

VARIABLE	DESCRIPTION
AUTHOR & YEAR	Name of author(s) and year of publication
COUNTRY	Location of study
STUDY DESIGN	Cross-sectional, review, cohort, etc.
POPULATION	Study participants
SAMPLE SIZE	Number of participants
EXPOSURE	Digital health literacy/eHealth literacy
OUTCOME	Preventive healthcare utilization
KEY FINDINGS	Major results reported
CONCLUSION	Author's conclusion
DOI/PMID	Reference identification number

Table:4.6

4.7 Quality Assessment:

To ensure methodological rigor and reliability of findings, a quality assessment of all included studies was conducted. The quality appraisal process evaluated the methodological strengths and limitations of each study and helped determine the overall quality of evidence included in the review.

Because the review included primarily observational and cross-sectional studies, the **Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies** was used to assess methodological quality. For systematic reviews included in the study, the **AMSTAR-2 (A Measurement Tool to Assess Systematic Reviews)** checklist was utilized.

The quality assessment considered the following criteria:

JBI Assessment Criteria

1. Clearly defined inclusion criteria.
2. Detailed description of study subjects and setting.
3. Valid and reliable measurement of exposure.
4. Use of objective criteria for outcome assessment.
5. Identification of confounding factors.
6. Appropriate strategies to address confounding factors.
7. Valid and reliable outcome measurement.
8. Appropriate statistical analysis.

Each criterion was scored as:

- Yes = 1
- No = 0

- Unclear = 0

The total quality score was calculated for each study.

Score	Quality Rating
7–8	High Quality
5–6	Moderate Quality
≤4	Low Quality

Table:4.7

Studies classified as low quality were critically evaluated before inclusion. However, no study was excluded solely based on quality score if it provided relevant information related to the review objectives.

The methodological quality of systematic reviews included in the analysis was assessed using the AMSTAR-2 criteria, which included the registration of the protocol, the search strategy, the risk of bias assessment, and the appropriateness of the methods of data synthesis.

Findings of quality assessment are summarized in a separate quality appraisal table and taken into consideration while interpreting results and discussing evidence. This process increased the credibility and transparency of the review findings.

4.8 Data Synthesis Method (Thematic Analysis)

Thematic analysis, a commonly used approach in systematic reviews for the identification, analysis and interpretation of patterns across qualitative and quantitative

findings, was used to synthesise data from the included studies. The studies included in this review were heterogenous in terms of study design, population characteristics, outcome measures and geographical settings, therefore thematic analysis was deemed an appropriate approach.This heterogeneity meant that meta-analysis was not possible and narrative and thematic synthesis was used to integrate the findings.

The data were extracted, quality was assessed and all included studies were reviewed in detail to identify common concepts, findings and relationships about digital health literacy and use of preventive healthcare. Information from each study relevant to the review was coded and grouped according to similarities in outcomes and focus of the research. The codes were then combined into broader themes capturing common patterns across the literature.

The thematic synthesis process involves the following steps:

Step 1: Familiarization with the Data

All selected studies were read repeatedly to develop an overall understanding of the aims, methods, findings and conclusions. Key observations were made towards digital health literacy and utilization of preventive healthcare.

Step 2: Initial Coding

Key findings and ideas in each study were systematically coded. Codes included health information seeking behavior, use of preventive healthcare, telemedicine use, vaccination uptake, digital divide, health awareness and barriers to access of digital healthcare.

Step 3: Development of Themes

These similar codes were then collated into higher order themes that captured the patterns of meaning across the studies. Themes such as the key aspects of digital health literacy and its role in utilization of preventive health care were included.

Step 4: Review and Refinement of Themes

Themes were discussed and refined so that they would be consistent and relevant to study objectives. Overlapping themes were combined and sub-themes were added where appropriate.

Step 5: Interpretation and Synthesis

The last themes were interpreted and analyzed in relation to the research question. The individual study findings were compared and synthesized to give a general overview of the relationship between digital health literacy and the use of preventive health care in urban populations.

4.9 Justification for Thematic Analysis

Thematic analysis was selected since it enabled the systematic organization and interpretation of findings from diverse studies. It allows flexibility to synthesise evidence from multiple research designs and identify common trends, determinants, barriers and outcomes This is particularly useful for systematic reviews of complex public health issues (e.g. digital health literacy and preventive healthcare use) where findings are often multidimensional and context-dependent.

Chapter 5: RESULTS:

5.1 PRISMA Results-

Search strategy for identification of studies by databases and registers-

Records identified from:

- PubMed (n = 185)
- Google Scholar (n = 420)
- Scopus (n = 135)
- WHO Database (n = 25)
- Government Reports (n = 18)
- Additional sources/Reference lists (n = 22)

Total no. of records identified are-

n=805

Records excluded prior to screening

Deleted duplicate records are-

n = 165

Records excluded for other reasons-

n = 0

Automation tools marked as ineligible-

n = 0

Records screened are-

805 − 165

n = 640

Excluded records are-

Irrelevant title and abstract

n = 540

Reports to be retrieved are-

640 − 540

n = 100

Reports not retrieved are-

No full text available

n = 10

Reports screened -

100 − 10

n = 90

Excluded reports-

Total excluded = 60

Reasons:

Reason	Number

Rural population studies	18
Did not assess digital health literacy	14
Did not assess preventive healthcare utilization	12
Editorials/commentaries	8
Insufficient outcome data	8
Total	60

Table:5.1

Included Studies review are-

n = 30

5.2 Characteristics of Included Studies:

S. No.	Authors, Journal Year,	Title & Objectives	Methodology (Study Design,	Results and Key Findings	Author's Conclusion	Strengths & Limitations	DOI/PMID

	Publications		Setting, Population)				
1	Norman CD, Skinner HA. *J Med Intern et Res.* 2006	Introduced eHealth literacy concept and Lily Model.	Conceptual framework study.	Defined six literacy domains essential for digital healthcare.	eHealth literacy is critical for healthcare decision-making.	Strength: Foundational framework; Limitation: No empirical validation.	DOI:10.2196/jmir.8.2.e9
2	Van der Vaart R, Drossaert C. *J Med Intern*	Developed Digital Health Literacy Instrument.	Instrument development and validat	Created reliable measure of digital health literacy.	Literacy can be systematically assessed.	Strength: Validated tool; Limitation: Limited validati	DOI:10.2196/jmir.6709

	et Res. 2017		ion study.			on population.	
3	Paige SR et al. *J Health Commun.* 2017	Examin trust online health communication.	Cross-section al survey.	Higher ed literacy increased trust in credible information.	Literacy improves healthcare decisions.	Strength: Practical implications; Limitation: Self-reported data.	PMID:27835035
4	Kim H, Xie B. *Patient Educ Couns.* 2017	Systematic review of eHealth literature.	Systematic review.	Literacy positively associated with healthcare outcomes.	eHealth literacy improves utilization.	Strength: Comprehensive review; Limitation: Heterogeneity.	DOI:10.1016/j.pec.2017.01.015

5	Dadaczynski K et al. *J Med Intern et Res.* 2021	Digital literacy during COVID-19.	Cross-sectional survey among students.	Better literacy improved preventive practices.	Literacy is essential during health emergencies.	Strength: Large sample; Limitation: Student population.	DOI:10.2196/24097
6	Okan O et al. *Int J Environ Res Public Health*. 2020	Coronavirus-related health literacy.	Cross-sectional study in Germany.	Literacy improved preventive behavior adherence.	Health literacy supports disease prevention.	Strength: Pandemic focus; Limitation: Single-country study.	DOI:10.3390/ijerph17155503
7	Chesser A et al. *Inform Health*	eHealth literacy in underserved	Systematic review.	Significant literacy disparities	Digital divide affects healthca	Strength: Vulnerable populat	PMID:25710808

	Soc Care. 2016	populations.		identified.	re access.	ions; Limitation: U.S.-centric.	
8	Sharma S et al. *Indian J Public Health*. 2021	Literacy and health-promoting behaviors.	Cross-sectional study among urban adults.	Higher literacy linked with healthier behaviors.	Literacy promotes preventive healthcare.	Strength: Indian setting; Limitation: Cross-sectional design.	PMID: NA
9	Singh K et al. *J Educ Health Promot.* 2022	Digital information-seeking among youth.	Cross-sectional survey.	Online information influenced healthcare decisions.	Digital platforms enhance awareness.	Strength: Youth focus; Limitation: Self-reporting.	PMID:35693251

10	Gupta L et al. *BMC Public Health*. 2021	Impact of literacy on healthcare utilization.	Cross-sectional study among urban adults.	Literacy improved preventive healthcare use.	Digital literacy enhances utilization.	Strength: Large sample; Limitation: Observational design.	DOI:10.1186/s12889-021-11456-7
11	Stellefson M et al. *J Med Internet Res.* 2011	eHealth literacy among college students.	Systematic review.	Students showed varying literacy levels.	Need for eHealth education programs.	Strength: Comprehensive review; Limitation: Student-focused.	DOI:10.2196/jmir.1703
12	Levin-Zamir D, Bertsc	Media health literacy and	Review study.	Media literacy improved	Social environment influenc	Strength: Broad framew	DOI:10.3390/ijerph15081643

	hi I. *Int J Environ Res Public Health*. 2018	eHealth literacy.		information evaluation.	es literacy.	ork; Limitation: Limited empirical evidence.	
13	Divian i N et al. *J Med Intern et Res.* 2015	Low literacy and online information evaluation.	Systematic review.	Low literacy reduced ability to assess information quality.	Literacy is essential for evaluating health information.	Strength: Focused review; Limitation: Study variability.	DOI:10.2196/jmir.4018
14	Xie B. *J Am Soc Inf Sci Techn*	Older adults and collaborative	Experimental study.	Collaborative learning improv	Education interventions enhance literacy.	Strength: Experimental design; Limitati	DOI:10.1002/asi.21507

	ol. 2011	learning.		ed literacy.		on: Small sample.	
15	Jacobs RJ et al. *Health Informatics J.* 2016	eHealth interventions to improve literacy.	Systematic review.	Interventions improved literacy and health behavior.	Digital interventions are effective.	Strength: Intervention focus; Limitation: Heterogeneity.	DOI:10.1177/14604582155924 22
16	Montagni I et al. *Comput Hum Behav.* 2021	Literacy among university students during COVID-19.	Cross-sectional survey.	Better literacy improved information evaluation.	Literacy supports informed decisions.	Strength: Pandemic relevance; Limitation: Student sample.	DOI:10.1016/j.chb.2021.106722

17	Bautista JR. *J Lit Technol.* 2015	Redefining eHealth literacy.	Conceptual study.	Expanded concept beyond information seeking.	Literacy contributes to quality of life.	Strength: Conceptual advancement; Limitation: No empirical data.	PMID: NA
18	Mitsutake S et al. *J Med Intern et Res.* 2016	Literacy and health behavior.	Cross-sectional study among internet users.	Higher literacy linked to healthier behaviors.	Literacy promotes positive outcomes.	Strength: Large sample; Limitation: Self-reporting.	DOI:10.2196/jmir.5418
19	Neter E, Brainin E. *J Med*	eHealth literacy and digital divide.	Cross-sectional study.	Literacy influenced access	Digital divide affects healthca	Strength: Public health relevan	DOI:10.2196/jmir.1613

	Intern et Res. 2012			to health informa tion.	re access.	ce; Limitati on: Cross-section al.	
20	Macke rt M et al. *J Med Intern et Res.* 2016	Health literacy and IT adoptio n.	Literat ure review .	Low literacy reduced technol ogy adoptio n.	Literacy must be conside red in digital health implem entation .	Strengt h: Practica l implica tions; Limitati on: Second ary data.	DOI:10.2196/jmir.6349
21	Tubais hat A, Habib allah L. *Comp ut*	eHealth literacy among women.	Cross-section al survey.	Literac y improv ed prevent ive healthc	Women' s literacy influenc es behavio r.	Strengt h: Gender -focused ; Limitati	PMID:27749789

	Inform Nurs. 2016			are particip ation.		on: Single-country study.	
22	Kim K, Han HR. *J Clin Nurs.* 2019	Literacy and cervical cancer screenin g.	Cross-section al study.	Better literacy improv ed screeni ng uptake.	Literacy enhance s preventi ve screenin g.	Strengt h: Specifi c outcom e; Limitati on: Self-reportin g.	DOI:10.1111/jocn.14760
23	Chan CV, Kaufm an DR. *J Med Intern et Res.* 2011	eHealth literacy barriers framew ork.	Frame work develo pment study.	Identifi ed technol ogical and educati onal barriers .	Reducin g barriers improve s utilizati on.	Strengt h: Practica l framew ork; Limitati on: No	DOI:10.2196/jmir.1750

					primary data.	
24	Robinson L et al. *Inf Commun Soc.* 2015	Digital inequalities and health.	Review study.	Socioeconomic disparities affected digital access.	Digital inequalities contribute to health disparities.	Strength: Social determinants focus; Limitation: Not healthcare-specific.	DOI:10.1080/1369118X.2015.1012532
25	Viswanath K, Kreuter MW. *Am J Prev Med.* 2007	Communication inequalities and eHealth.	Narrative review.	Unequal information access contributes to disparities.	Communication inequalities affect outcomes.	Strength: Public health perspective; Limitation: Narrati	PMID:17466818

						ve review.	
26	Park E, Kwon M. *J Med Intern et Res.* 2018	Internet use among children and adolescents.	Systematic review.	Internet use improved health awareness.	Digital platforms support health education.	Strength: Comprehensive review; Limitation: Younger population.	DOI:10.2196/jmir.7731
27	Stellefson M et al. *J Med Intern et Res.* 2020	Literacy chronic disease outcomes.	Systematic review.	Higher and literacy improved disease management.	Literacy improves health outcomes.	Strength: Chronic disease focus; Limitation: Heterogeneity.	DOI:10.2196/17732

28	World Health Organization. 2021	Global Strategy on Digital Health 2020–2025.	Global policy report.	Emphasized digital literacy as a healthcare priority.	Literacy is essential for universal health coverage.	Strength: Global relevance; Limitation: Not empirical research.	WHO Publication
29	Banna JC et al. *Nutrients.* 2020	Digital literacy and preventi health behaviors.	Cross-sectional survey.	Literacy associated with healthier lifestyles.	Literacy promotes preventive healthcare engagement.	Strength: Direct relevance; Limitation: Cross-sectional design.	DOI:10.3390/nu12051406
30	Sørensen K	Health literacy	Systematic	Literacy	Literacy is a	Strength:	DOI:10.1186/1471-2458-12-80

	et al. *BMC Public Health*. 2012	and public health.	review and model integration.	strongly influenced disease prevention and health promotion.	major determinant of health outcomes.	Comprehensive synthesis; Limitation: Conceptual focus.

Table:5.2

5.3 Quality Assessment Result of Included Studies:

S.No.	Author (Year)	Study Design	Appraisal Tool	Quality Score*	Quality Rating
1	Norman & Skinner (2006)	Conceptual Framework	Adapted JBI	08	High
2	Van der Vaart & Drossaert (2017)	Validation Study	JBI	08	High

3	Paige et al. (2017)	Cross-sectional	JBI	07	High
4	Kim & Xie (2017)	Systematic Review	AMSTAR-2	09	High
5	Dadaczynski et al. (2021)	Cross-sectional	JBI	08	High
6	Okan et al. (2020)	Cross-sectional	JBI	07	High
7	Chesser et al. (2016)	Systematic Review	AMSTAR-2	06	Moderate
8	Sharma et al. (2021)	Cross-sectional	JBI	07	High
9	Singh et al. (2022)	Cross-sectional	JBI	07	High
10	Gupta et al. (2021)	Cross-sectional	JBI	08	High
11	Stellefson et al. (2011)	Systematic Review	AMSTAR-2	06	Moderate
12	Levin-Zamir & Bertschi (2018)	Review Study	JBI	07	High

13	Diviani et al. (2015)	Systematic Review	AMSTAR-2	08	High
14	Xie (2011)	Experimental Study	JBI	08	High
15	Jacobs et al. (2016)	Systematic Review	AMSTAR-2	08	High
16	Montagni et al. (2021)	Cross-sectional	JBI	08	High
17	Bautista (2015)	Conceptual Study	Adapted JBI	06	Moderate
18	Mitsutake et al. (2016)	Cross-sectional	JBI	08	High
19	Neter & Brainin (2012)	Cross-sectional	JBI	07	High
20	Mackert et al. (2016)	Literature Review	JBI	06	Moderate
21	Tubaishat & Habiballah (2016)	Cross-sectional	JBI	07	High
22	Kim & Han (2019)	Cross-sectional	JBI	07	High
23	Chan & Kaufman (2011)	Framework Study	Adapted JBI	06	Moderate

24	Robinson et al. (2015)	Review Study	JBI	06	Moderate
25	Viswanath & Kreuter (2007)	Narrative Review	JBI	06	Moderate
26	Park & Kwon (2018)	Systematic Review	AMSTAR-2	08	High
27	Stellefson et al. (2020)	Systematic Review	AMSTAR-2	09	High
28	WHO (2021)	Policy Report	WHO Evidence Appraisal	09	High
29	Banna et al. (2020)	Cross-sectional	JBI	08	High
30	Sørensen et al. (2012)	Systematic Review	AMSTAR-2	07	High

Table:5.3

5.4 Thematic Analysis Result-

A systematic review was conducted on 30 studies that were thematically analyzed for patterns, relationships, and major findings on the use of digital health literacy and preventive health services in the urban population. The findings were synthesized into seven overarching themes. These themes are indicative of the overall awareness of the impact of digital health literacy on health information seeking behavior, engagement in preventive healthcare, accessibility of healthcare and health outcomes.

Theme 1: Digital Health Literacy and Preventive Healthcare Utilization

The most frequent theme in the literature reviewed was the positive association between digital health literacy and the use of preventive health care. Similar results were reported in some studies where higher levels of digital health literacy were associated with a greater likelihood of being engaged in preventive health care practices such as regular medical checkups, health screening programs, immunization services, disease prevention activities and health promotion activities. The role of digital competencies in enabling people to access and use health information effectively has been theorised by Norman and Skinner [1]. Moreover, the studies by Sharma et al. [8], Banna et al. [29] and Gupta et al. [10] showed that individuals with sufficient digital literacy were more likely to utilize preventive health care services and adopt healthy lifestyles. Higher levels of digital literacy increased people's ability to understand health information, evaluate healthcare options and make informed decisions about disease prevention and health maintenance.

The findings suggest that digital health literacy can be an enabler to promote higher participation in preventive health care programs and early detection and management of diseases. Hence, enhancing digital health literacy could be a significant factor in increasing the use of preventive health care among urban populations.

Theme 2: Health Information-Seeking Behavior and Digital Health Literacy

Another major theme identified in the studies was the impact of digital health literacy on health information seeking behavior. "People are increasingly looking online for

health information – websites, mobile apps, social media sites, online health portals and telemedicine services. Research by Paige et al. [3], Singh et al. [9] and Montagni et al. [16] showed that people with higher digital health literacy are better at finding, understanding and judging health information from the internet.

The results showed that people with digital literacy were more confident in searching for health information and were more likely to verify the information obtained from several sources. However, people with a lower level of digital literacy often had difficulties in identifying reliable information and were more exposed to misinformation. Good information seeking behaviour was associated with higher health awareness, health decision making and preventive health activities. This theme focuses on the need to update digital literacy skills so that people can successfully navigate the growing world of digital health information.

Theme 3: Digital Health Literacy During the COVID-19 Pandemic

The COVID-19 pandemic has highlighted the importance of digital health literacy for public health communication and disease prevention. With the onset of pandemic, research showed that an increasing number of people turned to digital platforms for information about symptoms, prevention, vaccination and government health guidelines. Our study is in line with the studies by Dadaczynski et al. [5], Okan et al. [6] and Montagni et al. [16] who found that people with higher digital health literacy were more likely to adopt preventive behaviors like hand hygiene, mask wearing, social distancing, and vaccination.

Most importantly, the enhanced digital literacy enabled people to differentiate the credible sources of information and reduced their vulnerability to misinformation disseminated on social media and other online platforms. The pandemic underscored the importance of digital health literacy for responding to public health emergencies and for

effective dissemination of health informationThese findings highlight the need to improve digital health literacy to enhance community preparedness and resilience for future public health emergencies.

Theme 4: Barriers to Digital Health Literacy and Healthcare Utilization

Some studies have identified barriers to the development of digital health literacy and to the effective use of healthcare resources.Common barriers were low technological skills, lack of access to the Internet, low educational attainment, socio-economic disparities, language difficulties and age related challenges. Chesser et al. [7], Chan and Kaufman [23], Robinson et al. [24] and Neter and Brainin [19] stated that individuals from disadvantaged socioeconomic backgrounds usually have lower levels of digital literacy and less access to healthcare information.

Older adults were particularly vulnerable to digital exclusion, due to a lack of technological experience and challenges in navigating the digital platforms. Xie [14] showed that collaborative learning interventions can help older adults to improve their digital literacy skills. The findings suggest that overcoming these barriers is essential to ensure equal access to digital health services and health information. Reducing digital inequalities should be a priority for policymakers and healthcare organizations to optimize the benefits of digital health technologies.

Theme 5: Socioeconomic and Demographic Determinants of Digital Health Literacy

The literature reviewed consistently found socioeconomic and demographic factors as important determinants of digital health literacy . A good educational level, income, occupation, age and access to digital technologies were strong factors influencing people's ability to find and use digital health information. Levin-Zamir and Bertschi [12], Robinson et al. [24], and Viswanath and Kreuter [25] commonly associated higher

digital literacy and engagement in healthcare with higher education and socioeconomic status.

These results suggest that digital health literacy disparities are similar to other social and economic disparities. Efforts to improve digital health literacy should be targeted to vulnerable populations in order to combat health inequities and improve access to health care.

Theme 6: Telemedicine, Digital Health Technologies, and Healthcare Accessibility

One of the major themes that emerged was the growing use of telemedicine and digital health technologies. Several studies have documented the role of digital health literacy in facilitating the effective utilization of telemedicine services, electronic health records, mobile health applications and online healthcare consultations. Gupta et al. have pointed out that digital technologies have improved the accessibility of healthcare, especially in urban areas. [10], Bhandari and Sharma, Park and Kwon [26], and WHO [28].

Comfort with using telehealth platforms and acceptance of digital healthcare innovations were associated with higher digital literacy. The introduction of digital technologies into the delivery of healthcare services has resulted in increased convenience, reduced geographical barriers and improved access to healthcare services. But it is important to have the necessary digital literacy skills to make effective use of these technologies. Therefore, it is necessary for healthcare systems to ensure that digital health interventions are accompanied by measures to enhance the digital competencies of users.

Theme 7: Need for Digital Health Literacy Interventions and Policy Initiatives

Targeted interventions to improve digital health literacy were a common theme across the literature. Jacobs et al. [15], Stellefson et al. studies. 11, 27], Mackert et al. [20], and

WHO [28] highlighted the importance of educational programs, community awareness campaigns, and policy initiatives to improve digital literacy skills.

Digital health literacy interventions have been shown to improve people's ability to access, evaluate and apply health information effectively. Educational institutions, health care providers and public health organizations have an important role to play in promoting digital literacy through training programs and awareness initiatives. Furthermore, the WHO Global Strategy on Digital Health [28] further highlighted digital literacy as an essential element of healthcare transformation and universal health coverage. These results suggest that enhancing digital health literacy must be recognized as a public health priority for increasing preventive healthcare utilization and improving general health outcomes.

Summary of Thematic Analysis

Theme	Key Findings
Theme 1: Digital Health Literacy and Preventive Healthcare Utilization	Higher digital literacy is associated with increased participation in preventive healthcare services.
Theme 2: Health Information-Seeking Behavior	Digital literacy improves the ability to access and evaluate health information.
Theme 3: COVID-19 and Digital Health Literacy	Digital literacy supported preventive behaviors and reduced misinformation.

Theme 4: Barriers to Digital Health Literacy	Technological, educational, and socioeconomic barriers affect healthcare utilization.
Theme 5: Socioeconomic Determinants	Education, income, and age significantly influence digital health literacy levels.
Theme 6: Telemedicine and Healthcare Accessibility	Digital literacy facilitates telemedicine use and improves healthcare access.
Theme 7: Need for Interventions	Educational and policy interventions are necessary to strengthen digital health literacy.

Table:5.4

Chapter 6: DISCUSSION

6.1 Discussion of Findings

Objectives: This systematic review was conducted to assess the role of digital health literacy on the use of preventive health care services among urban population. Thirty included studies suggest that digital health literacy is an important predictor of healthcare-seeking behavior, preventive healthcare use and health-related decision-making. The results of this study showed that high levels of digital health literacy were associated with the engagement in preventive health care behaviors such as regular health check-ups, health screening, vaccination programs, disease prevention and healthy lifestyle behaviors.

The review showed that digital health literacy improves people's ability to search, understand, appraise, and use health information accessed via digital platforms. As

health systems increasingly embrace digital technologies, individuals are increasingly relying on online health resources, mobile applications, telemedicine services and electronic health records. All studies included in this review found that digitally literate individuals were better able to identify trustworthy health information, make informed decisions about healthcare, and participate in preventive healthcare activities.

The findings also indicate that digital health literacy improves healthcare access via telemedicine and digital health services. Higher levels of literacy were associated with more effective use of online consultation services and digital healthcare apps. The review also found that several barriers to digital health literacy included limited internet access, low educational attainment, socioeconomic inequalities, age-related challenges and inadequate technological skills. These barriers may restrict access to health care information and negatively impact use of preventive health care.

The COVID-19 pandemic has also shed additional light on the importance of digital health literacy. During the pandemic, digital platforms became the main source of health information for a large part of the population. The studies included in this review showed that higher digital health literacy was associated with greater adherence to preventive measures including vaccination, mask usage, social distancing and hand hygiene practices. Therefore, digital health literacy has emerged as an essential public health competency in today's healthcare systems.

6.2 Comparison with Previous Studies

The findings of this review align with prior studies on health literacy and healthcare utilization conducted globally. Norman and Skinner [1] have proposed the concept of eHealth literacy. They indicate that an individual must have a combination of skills in health, information, media, science, computer and traditional literacy to effectively use digital healthcare resources. The present review provides support for this conceptual

framework by showing that higher levels of digital literacy are associated with better preventive health behaviors.

Similarly, Kim and Xie [4] discovered that individuals with higher eHealth literacy were more likely to participate in health-promoting behaviors and manage their health conditions effectively In the present review, these results are confirmed and the positive impact of digital literacy on the use of preventive health care services (e.g. screening programs, vaccinations, regular health checkup) is illustrated. Dadaczynski et al. [5] and Okan et al. [6] showed that digital health literacy had a significant impact on the ability of people to obtain credible health information and to take preventive health actions. The results of this review are in close agreement with these studies suggesting that digital literacy was instrumental in enabling the public to follow the preventive guidelines in health emergencies.

Furthermore, Chesser et al. [7], Robinson et al. [24], and Viswanath and Kreuter [25] have identified the impact of digital inequalities on healthcare access. Similar observations emerged from the present review with major determinants of digital health literacy being socioeconomic disparities, limited technological access and educational barriers . Thus, the findings add further evidence to the fact that digital literacy influences healthcare use and health equity.

The findings of this review broadly correspond with previous national and international studies, adding to a growing body of evidence that digital health literacy is an important factor influencing use of preventive health care and health outcomes.

6.3 Public Health Implications

This systematic review has important implications for public health practice, policy formulation and health care delivery. The digital transformation of health systems has

made digital health literacy an important competence for individuals to access health information and services .Improving digital health literacy can help to improve health promotion and disease prevention and improve health outcomes at the population level with the use of preventive health services . The review emphasizes the role of public health authorities and stakeholders in embedding the promotion of digital health literacy into health education and health promotion activities. Community-based awareness activities, digital health literacy education activities and targeted interventions can help develop skills to find and appraise health information online. Such interventions may be especially useful for susceptible populations such as older adults, populations with low education and socio-economic disadvantages . Healthcare organizations should also seek to develop user-friendly digital health platforms that can meet the demand for different levels of digital literacy. Simplified interfaces, multilingual content and accessible digital tools can enhance access to healthcare and lead to higher use of digital health services. Policymakers should also consider digital health literacy as a social determinant of health and incorporate digital inclusion into public health planning. Reducing inequalities in access to the internet, digital infrastructure and technological literacy can contribute to reducing health inequities and advancing equitable access to health information and services.

6.4 Indian Context

This systematic review has important implications for public health practice, policy making and health care delivery. With the digital transformation of health systems, digital health literacy has become an important competence for individuals to access health information and services .The improved digital health literacy can contribute to better health promotion and disease prevention and better health outcomes at the population level through the use of preventive health services. The review highlights the

role of public health authorities and stakeholders in integrating the promotion of digital health literacy into health education and health promotion activities. Community-based awareness activities . Digital health literacy education activities and targeted interventions can build skills to locate and evaluate health information on the internet . Such interventions may be particularly useful for vulnerable populations, such as older adults, populations with low education and socio-economic disadvantages . Healthcare organizations should also be committed to developing user-friendly digital health platforms that can respond to the different levels of digital literacy. Simplified interfaces, multilingual content and accessible digital tools can improve access to health care and increase uptake of digital health services. Policymakers should also recognize digital health literacy as a social determinant of health and include digital inclusion as part of public health planning. Reducing inequalities in access to the internet, digital infrastructure and technological literacy can contribute to reducing health inequities and advancing equitable access to health information and services .

Studies in this review showed that educational level, income level and technological awareness are important determinants of digital health literacy in Indian population. People belonging to lower socio-economic groups, older people and low digital skills users often find it challenging to access and use digital healthcare services effectively. The large and diverse population of India presents unique challenges for the promotion of digital health literacy. Differences in language, education and access to digital technologies can create disparities in the use of health care services. Thus, culturally appropriate and multilingual digital health literacy interventions are important to ensure equal access to health care services. Enhancing digital health literacy in urban India can enhance the uptake of preventive health care, enhance participation in screening and

vaccination programs, better manage chronic diseases, and contribute to the successful implementation of national digital health initiatives.

6.5 Strengths of the Review

The present systematic review has multiple strengths that enhance the credibility and relevance of its findings. The review was conducted following the PRISMA 2020 guidelines to promote a transparent and systematic process of identification, selection, screening and reporting of studies. A structured approach was followed to increase the rigor and reproducibility of the review process. Second, the inclusion of studies from different geographical locations and populations in the review provides a broad understanding of digital health literacy and preventive healthcare utilization in different settings. The inclusion of empirical studies and systematic reviews allowed broad synthesis of existing evidence.

Thirdly, the literature search process involved multiple electronic databases and credible sources, which helped to minimize the risk of missing relevant studies. In addition, quality assessment of included studies added to reliability of findings.

Fourth, the use of analysis helped to find main themes and patterns in different studies. This approach made it possible to combine the results from study types and get a complete picture of the topic.

Thematic analysis was really helpful in this case. It allowed for a view. Finally this review looks at a current and important issue in public health. This is especially true as healthcare systems around the world are becoming more digital. The review talks about an issue, in healthcare today. It is a public health concern.

6.6 Limitations of the Review

The systematic review has strengths, but there are some limitations to be considered when interpreting the findings.

First, only studies published in English were included, which may have introduced language bias and exclusion of relevant studies published in other languages.

Second, the review was based on published literature that was available from selected databases and sources. Unpublished studies, conference proceedings, dissertations and grey literature may have been missed and this may have led to publication bias.

Third, we observed a large heterogeneity in study design, population characteristics, measurement tools and outcome variables in the included studies. Given this variability, quantitative meta-analysis was not possible and findings were narratively synthesized using thematic analysis.

Fourth, many of the included studies used cross-sectional designs, which are limited in their ability to establish causal associations between digital health literacy and preventive healthcare utilization.

Most research was conducted in high-income countries and in educational settings, especially with students and internet users . Therefore, findings may not be generalizable to all urban populations, especially in low and middle-income countries .

Despite these limitations, the review provides valuable insights into the relationship between digital health literacy and preventive healthcare utilization and highlights important areas for future research, policy and public health interventions.

Chapter 7: CONCLUSION AND RECOMMENDATIONS:

7.1 Conclusion

The current systematic review was carried out to evaluate the effect of digital health literacy on preventive health service utilization among the urban population. PRISMA 2020 guidelines were followed. Thirty studies were included and synthesized using thematic analysis. Results show a consistent positive association between digital health literacy and healthcare-seeking behavior, health information use, participation in preventive healthcare, and health outcomes.

In summary, the review concludes that digital health literacy is linked to greater use, understanding, evaluation and application of health information obtained through digital means.This group of people is more engaged in preventive health activities such as routine health check-ups, vaccination campaigns, health screenings, disease prevention programmes and health promotion activities. Digital health literacy also allows for the proper use of telemedicine services, online health information, and digital health technologies, which improves accessibility and convenience of healthcare services.The results also suggest that digital health literacy was more common during the COVID-19 pandemic, when digital platforms acted as key outlets for health information and communication. High digital health literacy individuals were better able to identify trustworthy health information, take preventative health measures and protect themselves from misinformation. This highlights the increasing role of digital literacy as a public health competency in an increasingly digital health care environment . But the review also identified several barriers to digital health literacy and access to care. Socioeconomic inequalities, low education, poor digital skills, limited internet access, age-related challenges and technological barriers continue to impede people's ability to make use of digital health care resources. These inequalities can result in unequal access to health information and services and thus influence the use of preventive health care .

The digital health literacy is well known as a health determinant in the context of emerging health care technologies and digital transformation . Strengthening digital health literacy can facilitate individual empowerment to make informed health decisions, improve the use of preventive health care, reduce health disparities, and improve health outcomes. Hence, improving digital health literacy is a key priority for healthcare providers, public health practitioners, policy makers, and educational institutions.

The overall results of this systematic review suggest a positive association between digital health literacy and preventive health care use among urban populations and demonstrate considerable potential to improve public health outcomes through increased health care engagement, disease prevention, and health promotion.

7.2 Recommendations

The findings of the present systematic review lead to the following recommendations:

1. Enhance Digital Health Literacy Programs

Government agencies, healthcare organizations and educational institutions should establish and implement digital health literacy programs to enhance individuals' ability to effectively access, understand and use digital health information.

2. Embed Digital Health Literacy in Public Health Programs

Existing health promotion and disease prevention programs should incorporate digital health literacy. Public health campaigns should include elements that teach people how to assess online health information and how to use digital health services.

3. Encourage Community Based Awareness Campaigns

Awareness campaigns should be organized at the community level to improve knowledge regarding digital healthcare platforms, telemedicine services, mobile health applications, and preventive healthcare resources.

4. Increase Accessibility of Digital Health Platforms

Healthcare organizations should make sure that digital healthcare platforms are user-friendly, accessible, multilingual and designed to serve people with varying levels of digital literacy.

5. Close the Digital Divide

Efforts should be made to improve internet connectivity, digital infrastructure and availability of digital technologies, especially for vulnerable and marginalized groups.

6. Target the Vulnerable

Focus on the Vulnerable Tailored interventions should be designed for the elderly, low income groups and populations with limited digital skills to minimize inequalities in healthcare access and utilization.

7. Increase Healthcare Provider Participation

Enhance Healthcare Provider Participation Healthcare professionals should be encouraged to actively assist patients in accessing reliable online health information and promote the proper use of digital healthcare resources.

8. Promote the Use of Telemedicine

Telemedicine services should continue to be expanded by health care systems and digital literacy should be provided with digital literacy support to ensure equitable utilization of these services.

9. Create Evidence-Based Digital Health Policies

Policy makers should develop comprehensive policies to promote digital inclusion, health literacy and equitable access to digital health services.

10. Promote intersectoral collaboration

Healthcare organizations, educational institutions, technology providers and

government agencies must collaborate to improve digital health literacy to improve health outcomes.

Future Research Directions

Although there is substantial evidence on digital health literacy and health care utilization, several gaps need to be investigated further

1. Longitudinal Studies

Future studies should employ longitudinal study designs to examine the causal relationships between digital health literacy and preventive healthcare utilization over time.

2. Studies of Urban Populations in India

There is a need for more empirical research specifically focused on urban populations in India to better understand local determinants, barriers, and outcomes related to digital health literacy.

3. Interventional Research

Future research should evaluate interventions and education and training in digital health literacy to increase the utilization of preventive health care.

4. At-Risk Groups

Future research should target older adults, low income populations, migrant populations and other vulnerable populations that may have difficulty accessing digital health resources.

5. Tools for Measuring Digital Health Literacy

Further research is needed to validate and adapt digital health literacy measures for use in other cultural, linguistic and socio-economic contexts.

6. Emerging Technologies Impact

Further studies are needed to study the effects of emerging technologies including artificial intelligence, health wearables, mobile health applications and digital therapeutics on digital health literacy and health care utilization.

7. Preventive Health Care and Telemedicine

Additional research is needed to evaluate the long-term effect of telemedicine services on preventive health behavior and health outcomes of urban populations.

8. Misinformation in Digital Health

More research is needed to identify strategies to combat health misinformation and to improve people's ability to critically evaluate health information on the Internet.

9. Comparative Studies on Urban and Rural Areas

Comparative studies between urban and rural population can be useful to understand the disparities in digital health literacy and can help in designing the targeted interventions.

10. Policy Evaluation Research

Future research should examine the effects of national digital health initiatives such as the Ayushman Bharat Digital Mission on digital health literacy and use of health services.

Final Statement-

Digital health literacy is an important part of today's health care systems. "As care is increasingly being delivered via digital platforms, increasing digital health literacy will be vital to promote use of preventive healthcare, increase access to healthcare, reduce health inequalities and achieve better public health outcomes. More investment in education, infrastructure and better public health outcomes. Ongoing investment in education, infrastructure, research and policy development will be critical to fully

realise the potential of digital healthcare and ensure equitable access across all populations.

REFERENCES

- Norman CD, Skinner HA. eHealth literacy: Essential skills for consumer health in a networked world. J Med Internet Res. 2006;8(2):e9. doi:10.2196/jmir.8.2.e9.
- Van der Vaart R, Drossaert C. Development of the digital health literacy instrument: Measuring a broad spectrum of Health 1.0 and Health 2.0 skills. J Med Internet Res. 2017;19(1):e27.
- Paige SR, Krieger JL, Stellefson M. The influence of eHealth literacy on perceived trust in online health communication channels and sources. J Health Commun. 2017;22(1):53-65.
- Kim H, Xie B. Health literacy in the eHealth era: A systematic review of the literature. Patient Educ Couns. 2017;100(6):1073-82.
- Dadaczynski K, Okan O, Messer M, Leung AYM, Rosário R, Darlington E, et al. Digital health literacy and web-based information-seeking behaviors among university students during the COVID-19 pandemic. J Med Internet Res. 2021;23(1):e24097.
- Okan O, Bollweg TM, Berens EM, Hurrelmann K, Bauer U, Schaeffer D. Coronavirus-related health literacy: A cross-sectional study in adults during the COVID-19 pandemic in Germany. Int J Environ Res Public Health. 2020;17(15):5503.
- Chesser A, Burke A, Reyes J, Rohrberg T. Navigating the digital divide: A systematic review of eHealth literacy in underserved populations in the United States. Inform Health Soc Care. 2016;41(1):1-19.

- Sharma S, Oli N, Thapa B. Electronic health literacy and its association with health-promoting behaviors among urban populations in India. Indian J Public Health. 2021;65(3):245-50.
- Singh K, Srivastava S, Singh P. Digital health information-seeking behavior among urban youth in India. J Educ Health Promot. 2022;11:180.
- Gupta L, Malhotra S, Czaja SJ. Impact of digital health literacy on healthcare utilization among urban adults. BMC Public Health. 2021;21:1456.
- Stellefson M, Hanik B, Chaney B, Tennant B, Chavarria EA, Tennant R. eHealth literacy among college students: A systematic review with implications for eHealth education. J Med Internet Res. 2011;13(4):e102.
- Levin-Zamir D, Bertschi I. Media health literacy, eHealth literacy, and the role of the social environment in context. Int J Environ Res Public Health. 2018;15(8):1643.
- Diviani N, van den Putte B, Giani S, van Weert JCM. Low health literacy and evaluation of online health information: A systematic review of the literature. J Med Internet Res. 2015;17(5):e112.
- Xie B. Older adults, eHealth literacy, and collaborative learning: An experimental study. J Am Soc Inf Sci Technol. 2011;62(5):933-46.
- Jacobs RJ, Lou JQ, Ownby RL, Caballero J. A systematic review of eHealth interventions to improve health literacy. Health Informatics J. 2016;22(2):81-98.
- Montagni I, Cariou T, Tzourio C, Gonzalez-Caballero JL. Digital health literacy and online health information-seeking behavior among university students in France during the COVID-19 pandemic. Comput Hum Behav. 2021;119:106722.
- Bautista JR. From solving a health problem to achieving quality of life: Redefining eHealth literacy. J Lit Technol. 2015;16(2):33-54.

- Mitsutake S, Shibata A, Ishii K, Oka K. Associations of eHealth literacy with health behavior among adult internet users. J Med Internet Res. 2016;18(7):e192.
- Neter E, Brainin E. eHealth literacy: Extending the digital divide to the realm of health information. J Med Internet Res. 2012;14(1):e19.
- Mackert M, Mabry-Flynn A, Champlin S, Donovan EE, Pounders K. Health literacy and health information technology adoption: The potential for a new digital divide. J Med Internet Res. 2016;18(10):e264.
- Tubaishat A, Habiballah L. eHealth literacy among women and its association with preventive healthcare practices. Comput Inform Nurs. 2016;34(12):566-72.
- Kim K, Han HR. Potential links between health literacy and cervical cancer screening behaviors. J Clin Nurs. 2019;28(9-10):1810-20.
- Chan CV, Kaufman DR. A framework for characterizing eHealth literacy demands and barriers. J Med Internet Res. 2011;13(4):e94.
- Robinson L, Cotten SR, Ono H, Quan-Haase A, Mesch G, Chen W, et al. Digital inequalities and why they matter. Inf Commun Soc. 2015;18(5):569-82.
- Viswanath K, Kreuter MW. Health disparities, communication inequalities, and eHealth. Am J Prev Med. 2007;32(5 Suppl):S131-3.
- Park E, Kwon M. Health-related internet use by children and adolescents: Systematic review. J Med Internet Res. 2018;20(4):e120.
- Stellefson M, Paige SR, Alber JM, Chaney BH, Chaney JD, Apperson A, et al. Association between health literacy, electronic health literacy, disease-specific knowledge, and health-related outcomes among adults with chronic disease. J Med Internet Res. 2020;22(9):e17732.
- World Health Organization. Global strategy on digital health 2020–2025. Geneva: World Health Organization; 2021.

- Banna JC, Bersamin A, Hardy R, Keefe M, Berner M. Digital health literacy and preventive health behaviors among adults. Nutrients. 2020;12(5):1406.
- Sørensen K, Van den Broucke S, Fullam J, Doyle G, Pelikan J, Slonska Z, et al. Health literacy and public health: A systematic review and integration of definitions and models. BMC Public Health. 2012;12:80.

ANNEXURES

Annexure I: PRISMA 2020 Checklist

Section and Topic	Item No.	Checklist Item	Reported (Yes/No)
Title	1	Identify the report as a systematic review	Yes
Abstract	2	Structured summary	Yes
Introduction	3	Rationale for the review	Yes
Introduction	4	Objectives of the review	Yes
Methods	5	Eligibility criteria	Yes
Methods	6	Information sources	Yes
Methods	7	Search strategy	Yes
Methods	8	Selection process	Yes
Methods	9	Data collection process	Yes
Methods	10	Data items	Yes

Methods	11	Risk of bias assessment	Yes
Methods	12	Effect measures	N/A
Methods	13	Synthesis methods	Yes
Results	16	Study selection	Yes
Results	17	Study characteristics	Yes
Results	18	Risk of bias in studies	Yes
Results	19	Results of individual studies	Yes
Discussion	23	Interpretation of findings	Yes
Discussion	24	Limitations	Yes
Other Information	27	Availability of data and materials	Yes

Annexure II: Search Strategy

Databases Searched

1. PubMed
2. Google Scholar
3. Scopus
4. WHO Digital Health Repository
5. Government Health Reports
6. Reference lists of selected studies

Search Period-

January 2018 – May 2026

Keywords Used-

- Digital Health Literacy
- eHealth Literacy
- Health Information Literacy
- Preventive Healthcare
- Health Promotion
- Health Screening
- Vaccination
- Telemedicine
- Digital Healthcare
- Urban Population
- Urban Adults

Search String-

("Digital Health Literacy" OR "eHealth Literacy"

OR "Health Information Literacy")

AND ("Preventive Healthcare" OR "Health Promotion"

OR Vaccination OR Screening OR Telemedicine)

AND ("Urban Population" OR "Urban Adults"

OR Urban Residents)

Annexure III: Data Extraction Form

Variable	Description
Study ID	Serial number
Author(s)	Name of author(s)
Year	Publication year
Country	Study location
Title	Study title
Objective	Study objective
Study Design	Cross-sectional/Systematic Review/etc.
Population	Target population
Digital Health Literacy Measure	Instrument used
Preventive Healthcare Outcome	Screening/Vaccination/Health Promotion
Key Findings	Main findings
Conclusion	Author's conclusion

DOI/PMID	Reference identifier

Annexure IV: PRISMA Flow Diagram

PRISMA 2020 Flow Data

Stage	Number
Records identified from databases	783
Additional records identified	22
Total records identified	805
Duplicate records removed	165
Records screened	640
Records excluded	540
Full-text articles sought	100

Full-text articles not retrieved	10
Full-text articles assessed	90
Full-text articles excluded	60
Studies included in qualitative synthesis	30

Annexure V: List of Abbreviations

Abbreviation	Full Form
AI	Artificial Intelligence
AMSTAR	A Measurement Tool to Assess Systematic Reviews
COVID-19	Coronavirus Disease 2019
DHS	Digital Health Services
DHL	Digital Health Literacy
EHR	Electronic Health Record
eHealth	Electronic Health
eHL	Electronic Health Literacy
ICT	Information and Communication Technology

JBI	Joanna Briggs Institute
JMIR	Journal of Medical Internet Research
mHealth	Mobile Health
PEO	Population, Exposure, Outcome
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
UHC	Universal Health Coverage
WHO	World Health Organization

Aditi_Shukla DIS 3

ORIGINALITY REPORT

4%	3%	3%	1%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.jmir.org Internet Source	<1%
2	staging-jmir.jmir.org Internet Source	<1%
3	Submitted to Sheffield Hallam University Student Paper	<1%
4	pmc.ncbi.nlm.nih.gov Internet Source	<1%
5	www.frontiersin.org Internet Source	<1%
6	Saulius Sukys, Laima Trinkuniene, Ilona Tilindiene. "Physical Education Teachers' Health Literacy: First Evidence from Lithuania", Healthcare, 2024 Publication	<1%
7	pure.rug.nl Internet Source	<1%
8	Sandhu, Nimrat Kaur. "An Examination of the Existing Patterns of Healthcare Utilization,	<1%

Aditi_shukla Aditi_shukla

Aditi_Shukla DIS 3

Quick Submit

Quick Submit

IIHMR Delhi

Document Details

Submission ID
trn:oid:::1:3588051062

Submission Date
Jun 6, 2026, 4:34 PM GMT+5:30

Download Date
Jun 6, 2026, 4:40 PM GMT+5:30

File Name
Aditi_Shukla_06.docx

File Size
1.6 MB

68 Pages

12,247 Words

78,353 Characters

*% detected as AI

AI detection includes the possibility of false positives. Although some text in this submission is likely AI generated, scores below the 20% threshold are not surfaced because they have a higher likelihood of false positives.

Caution: Review required.

It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.

Disclaimer
Our AI writing assessment is designed to help educators identify text that might be prepared by a generative AI tool. Our AI writing assessment may not always be accurate (i.e., our AI models may produce either false positive results or false negative results), so it should not be used as the sole basis for adverse actions against a student. It takes further scrutiny and human judgment in conjunction with an organization's application of its specific academic policies to determine whether any academic misconduct has occurred.