

SYSTEMATIC REVIEW

Open Access



# Defining, assessing, and implementing organizational health literacy: barriers, facilitators, and tools – a systematic review

Nicola Pelizzari<sup>1\*</sup>, Loredana Covolo<sup>1</sup>, Elisabetta Ceretti<sup>1</sup>, Carlotta Fiammenghi<sup>2</sup> and Umberto Gelatti<sup>1</sup>

## Abstract

**Background** Organizational health literacy (OHL) is increasingly recognized as a fundamental aspect of high-quality healthcare delivery, focusing on organizations' roles in enabling patients to access, understand, and use health information effectively. This systematic review synthesizes current research on OHL, focusing on its definitions, assessment tools, implemented practices, outcomes, and the factors influencing successful OHL integration within healthcare settings.

**Methods** Guided by PRISMA and following a predefined registered protocol (PROSPERO 2024:CRD42024537425), this systematic review analyzed studies from six key databases, using targeted keywords associated with OHL. Eligibility criteria isolated research on OHL tools, practices, and outcomes in healthcare settings. Independent reviewers conducted study selection, data extraction, and bias risk analysis. Systematic quality assessment and data extraction were performed to thoroughly evaluate OHL's impact on healthcare.

**Results** This systematic review identified 62 articles, published between 2010 and 2024, from 15 different countries. A notable share (30.6%) aimed to develop, validate, and pilot context-sensitive OHL assessment tools. Other studies included qualitative (24.1%), descriptive (14.6%), case studies (11.29%), cross-sectional (8.06%), mixed methods (8.06%), and quantitative (3.25%) approaches, investigating factors promoting and impeding OHL outcomes. The results highlight a 54.1% increase in studies during the COVID-19 pandemic compared to the pre-pandemic period.

**Conclusion** OHL is instrumental in advancing healthcare systems towards greater accessibility and patient-centeredness. Nevertheless, overcoming the identified implementation barriers is crucial for realizing OHL's full potential in enhancing healthcare equity and efficiency. Strategic efforts are needed to foster organizational support, adapt structural practices, and allocate necessary resources for OHL initiatives to enhance healthcare.

**Keywords** Organizational health literacy, Health literate healthcare organization, Health literacy

\*Correspondence:

Nicola Pelizzari  
nicola.pelizzari@unibs.it

<sup>1</sup>Section of Public Health and Human Sciences, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Viale Europa 11, Brescia 25121, Italy

<sup>2</sup>Department of Foreign Languages and Literatures, University of Verona, Lungadige Porta Vittoria, 41, Verona 37129, Italy



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

## Introduction

### Health literacy: a global public health challenge

Health literacy (HL) is defined as the degree to which individuals can access, understand, appraise, and communicate information to engage effectively with the demands of various health contexts [1]. Limited health literacy is a global issue, with significant implications for public health worldwide. Studies indicate that nearly one in two people globally encounters problems handling health issues due to inadequate health literacy skills, a challenge that is particularly acute among older adults and those with lower educational levels [2, 3]. The World Health Organization (WHO) has consistently highlighted the widespread issue of low health literacy across both developed and developing countries. Barriers such as increasing age, low educational attainment, disadvantaged socioeconomic status, and poor reading skills are key contributors to this challenge [3]. This concern is not new; as early as 2013, the WHO recognized weak health literacy as a critical determinant of health, linking it to poorer health outcomes, increased healthcare costs, and inequities in accessing and understanding health information [4].

This global prevalence of limited health literacy underscores the urgency of addressing this issue. The complexity of modern health services often exceeds patients' abilities to navigate these systems, creating gaps that can result in adverse health outcomes. However, this challenge is compounded by the emergence of a disintermediated information ecosystem driven by the internet and social media, which has transformed how patients access, evaluate, and use health information. This intersection between traditional healthcare systems and the new, decentralized flow of information exacerbates the difficulty of making informed decisions, potentially leading to misinformation and further inequities in health literacy [5].

This disparity, as consistently highlighted by Rudd et al. [6–9] can lead to significant negative outcomes for individuals with limited health literacy. These individuals frequently encounter challenges in accessing and navigating healthcare organizations, communicating with healthcare professionals, understanding health information, and engaging in health-related decision-making and self-management [4, 10]. These challenges can profoundly impact patient safety, quality of care, and overall health outcomes [3]. Patients with low health literacy are more likely to experience medication errors, have less adherence to treatment plans, and require more frequent hospitalizations, all of which contribute to increased healthcare costs [2]. Therefore, addressing health literacy is crucial for improving public health and reducing health disparities, with healthcare organizations playing a pivotal role in this effort.

### Addressing health literacy through organizational change: current evidence and knowledge gaps

Organizational health literacy (OHL) expands the concept of health literacy to the institutional level. It focuses on the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others [11]. OHL involves designing health services that are easy to navigate and use, promoting health and preventing illness, fostering equality, and creating a responsive health system that supports individuals in making informed health decisions [12]. By reducing the complex demands placed on patients, healthcare organizations can help bridge the health literacy gap and improve patient outcomes. This approach not only enhances the quality of care but also ensures that health services are equitable and patient-centered [12].

Recent research has emphasized the critical role of healthcare organizations in addressing health literacy. Studies show that many healthcare systems do not adequately respond to the health literacy needs of patients, contributing to a “silent epidemic” of insufficient health literacy [13–15]. Over the past decade, a considerable amount of research has been conducted to promote and evaluate OHL across various settings, including hospitals and primary care facilities [16–75]. To effectively assess OHL, various tools have been developed in order to help identify gaps and measure the impact of interventions aimed at fostering health-literate healthcare organizations [13, 16–55].

To date, past reviews have addressed various aspects of OHL. For example, Kaper et al. [76] have explored the outcomes of OHL interventions, providing insights into the effectiveness of these initiatives in improving patient health outcomes. Farmanova et al. [77] have delved into the theoretical underpinnings of OHL, expanding our understanding of the conceptual frameworks that support health literacy efforts within organizations. Charoghchian Khorasani et al. [78] have identified the barriers and facilitators to OHL, highlighting the challenges and enablers in implementing health literacy strategies in healthcare settings.

Despite these valuable contributions, the field of OHL has continued to evolve. Since the publication of these reviews, new definitions of OHL have emerged, reflecting its multifaceted nature and the growing complexity of healthcare environments. Additionally, novel OHL assessment tools have been developed and tested across various healthcare contexts, providing more refined and effective means of evaluating health literacy within organizations. Furthermore, recent research has yielded new insights into the outcomes, facilitators, and barriers of OHL interventions, particularly in light of the increased

focus on health literacy during and after the SARS-CoV-2 pandemic. To address this need, this systematic review aims to synthesize the current body of evidence on OHL. Specifically, it will explore the evolving definitions of OHL, evaluate the various assessment tools used to measure it, and examine the outcomes of OHL interventions. Additionally, the review will identify the key facilitators and barriers to the successful implementation of OHL practices. By providing a comprehensive overview of these aspects, this review seeks to enhance our understanding and support the development of effective OHL strategies in healthcare settings.

### Materials and methods

This systematic review was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and as outlined in a predefined registered protocol (International prospective register of systematic reviews – PROSPERO, Unique ID number 2024:CRD42024537425) [79, 80]. Our investigation was driven by these primary research questions: “What are the definitions, assessment tools, and outcomes associated with organizational health literacy in healthcare settings, and what factors act as facilitators or barriers to its successful implementation?” In this systematic review, facilitators are defined as enabling factors, such as supportive policies, adequate resources, and organizational practices, that promote the successful implementation of organizational health literacy. Conversely, barriers are identified as obstacles, including structural limitations, cultural resistance, or inadequate resources, that impede the effectiveness and sustainability of health literacy initiatives in healthcare settings [81]. The research questions were further refined using the PICO framework [82] to ensure a structured and focused approach. The population of interest for this review included healthcare settings, such as hospitals, clinics, pharmacies, and community health centers. The intervention focused on the implementation strategies of OHL, examining how these strategies were operationalized within healthcare organizations. There was no specific comparison group, as the review aimed to assess the overall effectiveness of these interventions. The main outcomes examined included changes in patient health outcomes, improvements in healthcare delivery, patient satisfaction, and healthcare staff engagement. These outcomes were measured through qualitative descriptions of organizational changes, quantitative metrics such as scores from health literacy assessment tools, rates of patient engagement and satisfaction, and other relevant statistical measures illustrating the impact of OHL practices.

### Information sources

To identify and retrieve relevant studies, we conducted a comprehensive search of five electronic databases to ensure a comprehensive collection of relevant literature. Specifically, the databases searched were Web of Science, Scopus, PubMed, CINAHL, PsycINFO, as well as the Google Scholar search engine, covering a wide range of disciplines to ensure a broad spectrum of studies related to OHL. Although our primary focus was on peer-reviewed literature to ensure methodological rigor, we also examined grey literature indirectly by screening reports and documents referenced in previous systematic reviews on OHL and studies included in our final selection. This strategy allowed us to capture relevant insights from policy papers and institutional reports without compromising the review’s scholarly standards.

### Search strategy and study selection

The search encompassed studies published from the inception of each database until April 2024. The search strategy employed both Medical Subject Headings (MeSH) and free-text terms to capture the various terminologies used in the literature. Key search terms included “organizational health literacy,” “health literacy interventions,” “health literacy assessment,” “patient-centered care,” and “health literacy outcomes”. These terms were combined using Boolean operators to enhance the precision and comprehensiveness of the search results. The detailed search strings used for each database are provided in supplementary materials. Additionally, relevant systematic reviews were examined by analyzing their reference lists (bibliographies) to identify further eligible articles that may not have been captured in the initial database searches. These additional articles were assessed for inclusion based on predefined eligibility criteria. Duplicate entries were identified using a two-step verification system. Initially, duplicates were manually identified and annotated. Subsequently, a secondary review was conducted using the ZOTERO software (Corporation for Digital Scholarship) [83], culminating in the elimination of the identified duplicates. Search results were initially evaluated based on the title, abstract and keywords by two independent reviewers (NP and CF), which resulted in the exclusion of all clearly irrelevant articles. In case of disagreement between the two parties, a third member of the team (LC) was included to resolve all conflicts. All studies identified in this preliminary evaluation phase were considered eligible for assessment based on the exclusion and inclusion criteria stated in the next section.

### Inclusion and exclusion criteria

As summarized in Table 1, the selection of studies for inclusion was guided by a set of predefined eligibility

**Table 1** Inclusion/exclusion criteria

|                    | Inclusion Criteria  | Exclusion Criteria   |
|--------------------|---|--|
| Publication type   | Peer-reviewed articles or book sections   | Non-peer-reviewed publications or sources other than articles or book chapters |
| Setting            | Any type of healthcare setting  | Studies conducted outside healthcare settings                                  |
| Dissemination type | Scientific publications available in full-text format, published in indexed scientific journals   | Publications not available in full-text or not published in indexed journals   |
| Outcomes           | Studies examining OHL through tool creation, development, and validation; studies on completed OHL standard tools in healthcare settings; research on OHL formation, implementation, and evaluation; or studies on OHL barriers, facilitators, and outcomes in practice | Articles that do not address any of the specified OHL-related topics           |
| Language           | English   | Articles published in other languages  |
| Time               | From OHL inception until April 2024   | Publications outside the specified time frame                                  |

criteria: only peer-reviewed articles and book chapters were considered; publication dates ranged from OHL inception until April 2024; and the publication language was restricted to English. We imposed no restrictions on study design or geographical location, aiming for inclusivity and breadth in our review. As for the research topic, we included studies focused on the exploration of OHL. This encompassed research on the development, creation, and validation of tools aimed at facilitating OHL, the application and assessment of established OHL methodologies within various healthcare environments, and the investigation of factors influencing the formation, implementation, and evaluation of OHL initiatives. Studies that addressed the barriers to, facilitators of, and outcomes resulting from OHL practices across any healthcare setting were also included. Both empirical and non-empirical studies were included in this systematic review to provide a comprehensive understanding of OHL, incorporating evidence from practical applications as well as theoretical insights.

For consideration, scientific publications were required to be available in full-text format and published within journals that are indexed in recognized scientific databases. Publications that did not meet these specified requirements were systematically excluded from our review as summarized in the PRISMA flowchart in Fig. 1.

### Quality assessment

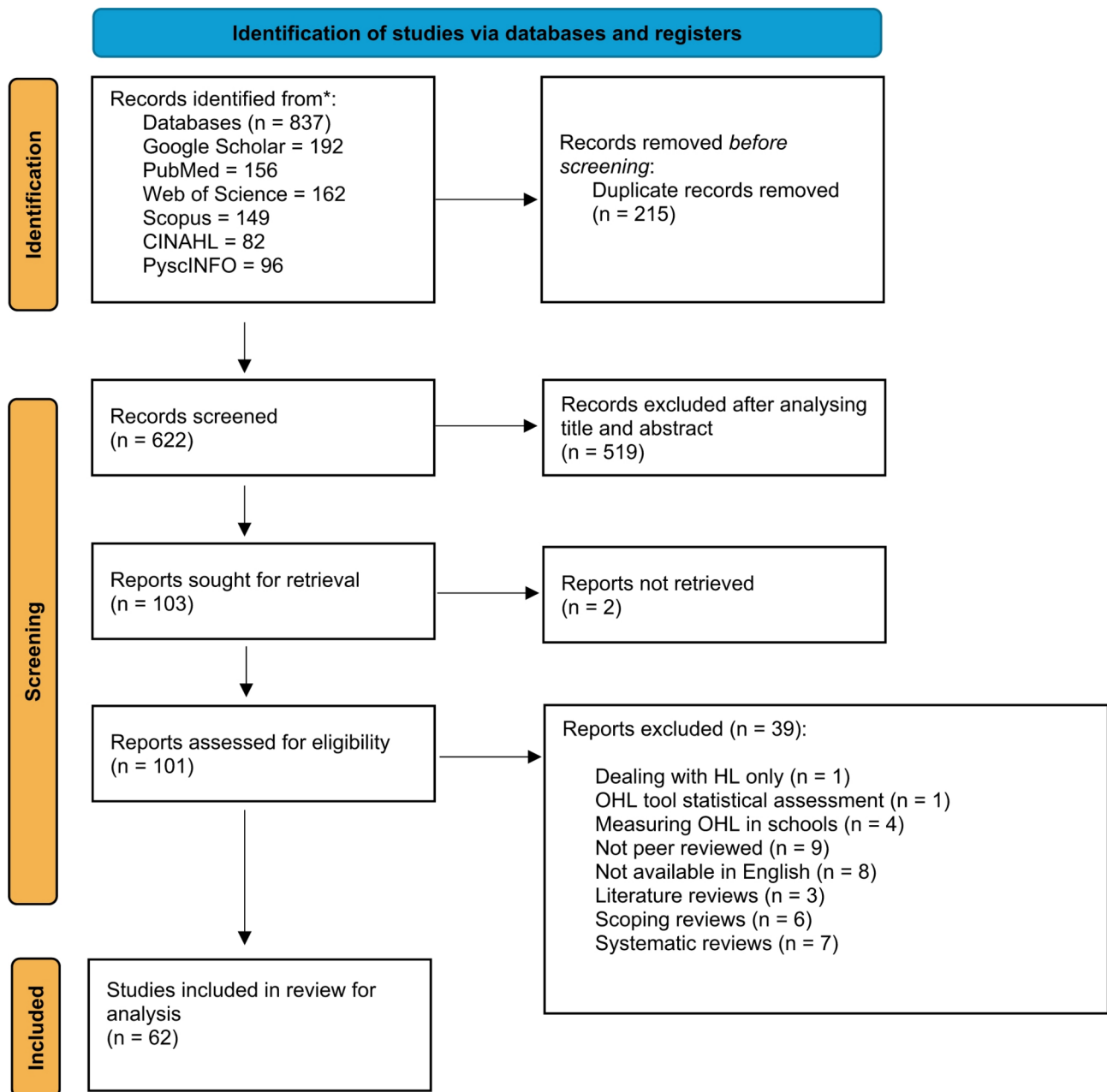
The methodological quality of each study was assessed by two authors (NP and CF) using two distinct tools, depending on the type of study. In instances where discrepancies arose, a third author (LC) was engaged to adjudicate, facilitating a rigorous process to reach a consensus on the final evaluation between all parties. For empirical studies, those based on the collection and analysis of primary data through direct observation or field experiences, we used the Kmet Standard Quality Assessment Criteria [84], which provides structured checklists for both quantitative (14 items) and qualitative studies (10 items). Each item is scored as “yes” (2 points),

“partial” (1 point), or “no” (0 points), and the total score is converted to a value between 0 and 1. Assessment items include clarity of research question, appropriateness of study design, description of participants, control of confounding variables, and appropriateness of statistical analysis, among others. A score > 0.75 was considered indicative of good quality, a score between 0.55 and 0.75 was considered of adequate quality, and a score below 0.55 was deemed poor quality. For non-empirical studies, the JBI Critical Appraisal Checklist for narrative, opinion, and textual studies [85] was used to assess the methodological credibility and to determine the extent to which a study addressed potential bias in its design, conduct, and analysis. Examples of assessment items include the clear identification of the source of the opinion and its standing in the field of expertise, focus on relevant populations, clarity of argument, peer support for the opinion’s basis and experience, as well as references to existing literature and any incongruences. A score between 6 and 5 was considered indicative of high credibility, 4 to 2 of moderate credibility, and 1 to 0 of low credibility.

### Results

The database search, combined with reference tracking, identified 837 publications from 2010 to 2024. As shown in Fig. 1, based on the inclusion criteria, 62 potentially relevant articles with data on 932 health organizations (158 hospitals, 60 pharmacies, 26 health centers, 25 health organizations, 9 primary care organizations, 628 youth health clinics, 18 cancer centers, and 8 centers dealing with chronic conditions, disability, mental disorders, and rehabilitation) were included in the systematic review. Characteristics of the selected articles are detailed in the supplementary section 1 (SS1).

Data were extracted from studies conducted in 14 individual countries, as well as one study that covered the entire European Union, resulting in a total of 15 distinct geographical settings. Each study was assigned to a country based on the healthcare setting explicitly described in the article. Three studies were not associated with any

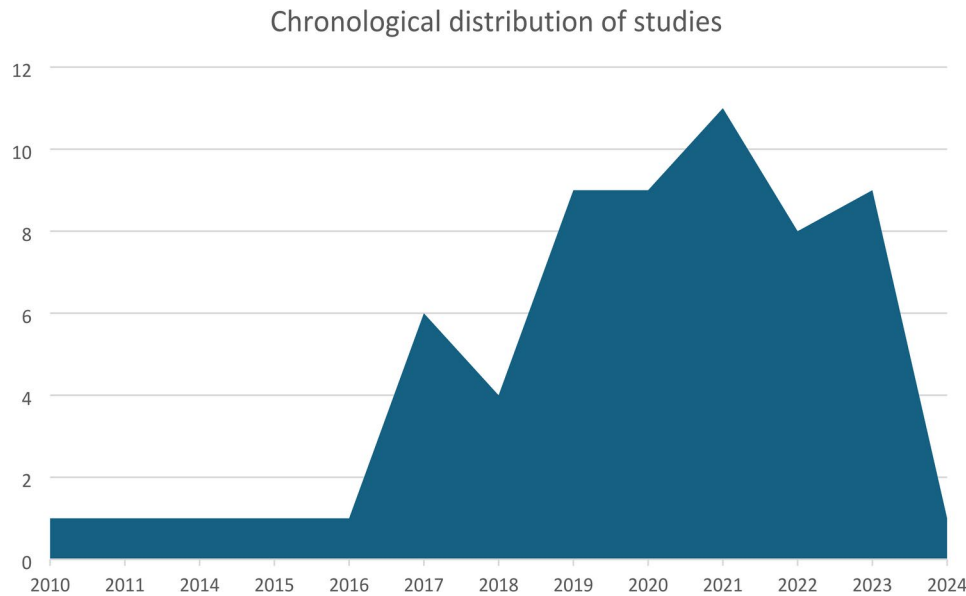


**Fig. 1** PRISMA flowchart of the screening process

specific country, as they did not explicitly collect data but addressed organizational health literacy from conceptual, theoretical, or policy-oriented perspectives. Overall, 44% of the studies were conducted within the European Union, specifically in Germany ( $n=8$ ), Denmark ( $n=6$ ), Italy ( $n=5$ ), Belgium ( $n=2$ ), the Netherlands ( $n=2$ ), Austria ( $n=1$ ), Spain ( $n=1$ ), Ireland ( $n=1$ ), and in the whole European Union ( $n=1$ ). Additionally, 25% of the studies were from the United States ( $n=15$ ), 16.6% from Australia ( $n=10$ ), and the remainder from other countries including Turkey ( $n=3$ ), Switzerland ( $n=3$ ), China ( $n=1$ ), and Iran ( $n=1$ ).

As presented in Fig. 2, the first article on OHL included in this systematic review was published in 2010. The chronological distribution of studies shows a significant increase in research activity over recent years, with a notable peak in 2021 (11 studies). The number of studies per year increased from 1-6 per year between 2010 and 2018, to a consistent 8-11 per year from 2019 to 2023, indicating a growing interest and focus in the field of OHL during the last five years.

A substantial portion (30.6%) of the studies aimed to develop, validate, and pilot context-sensitive OHL assessment tools. Other study designs included qualitative



**Fig. 2** Chronological distribution of studies

(24.1%), descriptive (14.6%), case studies (11.29%), cross-sectional (8.06%), mixed methods (8.06%), and quantitative (3.25%), investigating factors that promote and impede OHL outcomes.

The majority of studies (64.5%) focused on the development, validation, piloting, or assessment of OHL practices within the healthcare sector. The remaining 35.5% of studies specifically explored health literacy issues in health organizations from the health provider-patient perspective, addressing the implementation of OHL practices.

### OHL definitions

Seven different definitions for OHL have been identified. The earliest definition is the one provided by Wynia et al. [46] who define OHL as “the measure of how well a healthcare organization equips its patients and staff to find, understand, and use information and services to inform health-related decisions and actions for themselves and others”. This definition appeared in 1 article, making up about 1.5% of the total. Brach [13] defines OHL as “the degree to which an organization implements policies, practices, and systems that make it easier for people to navigate, understand, and use information and services to take care of their health”. This definition was the most widely cited, appearing in 39 articles and accounting for 62%. Weaver et al. [43] describe OHL as “the adaptation and implementation of practices within healthcare organizations to enhance the ability of individuals to understand and use information and services to inform health-related decisions.” This definition was found in 1 article, representing 1.5%. Farmanova [77] defines OHL as “an organization-wide effort to make it

easier for people to navigate, understand, and use information and services to take care of their health.” This definition was cited in 5 articles, making up 8% of the total. International Union for Health Promotion and Education (IUPHE) [86] defines OHL as “the way in which services, organizations, and systems make health information and resources available and accessible to people according to health literacy strengths and limitations.” This definition appeared in 8 articles, accounting for 13% of the total. CDC and Healthy People [11] provide the most recent definition available in literature and describe OHL as “the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.” The definition used by CDC appeared in 2 articles (3%) and Healthy People in 7 articles (11%). Overall, the evolution of OHL definitions reflects a growing recognition of the need for systemic, equitable, and practical approaches within healthcare organizations to support health literacy. The definitions have progressed from a focus on availability and accessibility to a broader emphasis on equity, systemic efforts, and practical adaptations to enhance health literacy outcomes.

### OHL assessment tools

Among the 62 studies included in this systematic review, 40 aimed to measure various aspects of OHL using different assessment tools [11, 16–55]. The analysis of these tools also reveals differences in the inclusion of health literate healthcare organization attributes [13] and their frequency of use (Table 2). The HLHO-10 tool was the most frequently used, appearing in 9 articles, which accounts for 22.5% of the studies. This tool assesses ten

**Table 2** Attributes of health literate healthcare organization within the assessment tools [13]

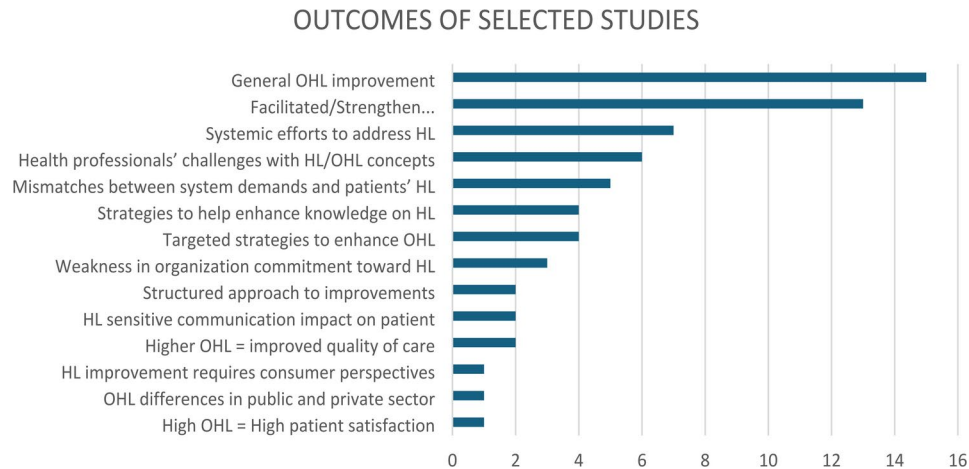
| Assessment tools and their coverage of the ten attributes of a health literate healthcare organization |    |                                    |    |    |    |   |   |   |   |    |  |
|--|----|------------------------------------|----|----|----|---|---|---|---|----|--|
| Assessment Tool  | 1  | 2                                  | 3  | 4  | 5  | 6 | 7 | 8 | 9 | 10 | Reference to studies using the tool (see supplementary material) |
| HLHO-10  | •  | •                                  | •  | •  | •  | • | • | • | • | •  | 7, 12, 13, 18, 25, 26, 27, 31, 30                                |
| OHLO   | •  | •                                  | •  | •  | •  |   |   | • | • | •  | 13   |
| V-HLO  | •  | •                                  | •  | •  | •  |   |   | • | • | •  | 14, 15, 38   |
| OHL-HAM  | •  | •                                  | •  | •  | •  |   |   |   | • | •  | 17   |
| OHL-HOS  | •  | •                                  | •  | •  | •  |   |   | • |   | •  | 22   |
| Org-HLR  | •  | •                                  | •  | •  | •  |   |   |   |   | •  | 1, 3, 20, 23, 34, 35, 36   |
| OSI  | •  | •                                  | •  |    | •  |   |   | • |   | •  | 2  |
| C-CAT  | •  | •                                  | •  |    | •  |   |   |   | • | •  | 4, 5, 24, 39   |
| OHL Self-AsseT   | •  | •                                  |    | •  | •  |   |   |   |   | •  | 6, 8, 32   |
| HL-COM   | •  |                                    | •  |    | •  |   |   |   | • | •  | 9, 21  |
| AHRQ   | •  | •                                  | •  |    | •  |   |   |   |   | •  | 19   |
| LADHS  |    |                                    | •  | •  | •  |   |   | • |   |    | 16   |
| HLEAP  |    | •                                  |    | •  | •  |   |   | • |   |    | 29, 30   |
| HLES   |    | •                                  |    | •  | •  |   |   | • |   |    | 33   |
| HLE2   |    | •                                  |    | •  | •  |   |   |   | • |    | 10, 11, 37   |
| CAHPS  |    | •                                  |    | •  | •  |   |   |   | • |    | 28   |
| PEMAT  |    | •                                  |    |    | •  |   |   | • |   |    | 30   |
| QUICKSCAN  | •  | •                                  |    |    | •  |   |   |   |   |    | 16   |
| <b>Attributes frequency</b>  | 12 | 16                                 | 11 | 12 | 18 | 1 | 1 | 9 | 8 | 10 |  |
| <b>Ten attributes of a health literate healthcare organization (HLHO)</b>                              |    |                                    |    |    |    |   |   |   |   |    |  |
| 1 – Leadership promotes  |    | 2 - Plans, evaluates, and improves |    |    |    |   |   |   |   |    |  |
| 3 – Prepares workforce   |    | 4 – Ensures easy access            |    |    |    |   |   |   |   |    |  |
| 5 – Communicates effectively   |    | 6 – Explains coverage and costs    |    |    |    |   |   |   |   |    |  |
| 7 – Targets high risk  |    | 8 – Designs easy to use materials  |    |    |    |   |   |   |   |    |  |
| 9 – Meets needs of all   |    | 10 – Includes consumers            |    |    |    |   |   |   |   |    |  |

different attributes of OHL, making it one of the most comprehensive tools reviewed. The OHLO tool was used in 8 articles, representing 20% of the studies. It evaluates eight attributes of OHL, providing a broad assessment of organizational health literacy practices. The Org-HLR tool was used in 7 articles, representing 17.5% of the studies. It evaluates six attributes of OHL. Other tools were used less frequently, each assessing between 3 and 8 attributes, and appearing in a smaller number of articles. The most commonly assessed attribute across all tools is “Communicates effectively” included in 100% of the OHL assessment tools. This is followed by “Plans, evaluates, improves,” which is assessed by 89% of the tools. These

attributes highlight the critical aspects of communication and continuous improvement in healthcare settings.

**OHL outcomes**

The most frequently reported outcome was general OHL improvement, identified in 15 studies (See SS1, studies 1, 10, 11, 17, 31, 41, 32, 33, 38, 39, 40, 43, 44, 57, 58). This indicates a broad focus on overall enhancements in OHL. Facilitated or strengthened HL responsiveness in healthcare organizations was reported in 13 (See SS1, studies 2, 3, 14, 16, 21, 23, 34, 35, 36, 37, 49, 52, 54), highlighting efforts to enhance the responsiveness of healthcare organizations to health literacy needs. Systemic efforts



**Fig. 3** Distribution of OHL outcomes



**Fig. 4** Distribution of OHL facilitator

to address HL within healthcare organizations were discussed in 7 (See SS1, studies 24, 41, 46, 47, 48, 56, 61) pointing to the necessity of comprehensive approaches to integrating health literacy into organizational practices. Other outcomes, such as the impact of health literacy-sensitive communication on patient outcomes, targeted strategies to enhance OHL and public health outcomes, challenges in healthcare environments, and variations in OHL levels based on hospital type, were reported less frequently and are summarized in Fig. 3.

#### Frequency and distribution of OHL facilitators

This review identified various facilitators across the selected articles (Fig. 4).

Team broad participation, engagement, and co-participation emerged as the most frequently reported facilitator, appearing in 32 articles, which constitutes 51.6% of the total articles reviewed (See SS1, studies 1, 2, 3, 5, 7, 10, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 25, 26, 27, 30, 32,

36, 37, 38, 39, 41, 47, 52, 54, 55, 56, and 60). Health literacy background, training, and the integration of health literacy practices were also prominent (45.2%), noted in 28 articles (See SS1, studies 1, 4, 5, 6, 11, 12, 13, 18, 19, 24, 25, 27, 28, 31, 34, 35, 40, 41, 44, 45, 46, 48, 50, 53, 56, 60, and 61). Tailored and effective communication strategies, both written and oral, were identified in 18 articles (See SS1, studies 8, 9, 11, 12, 21, 29, 30, 39, 41, 45, 46, 48, 49, 50, 52, 56, 59, and 60), representing 29.0% of the total. Looking at the contexts in which these facilitators appear, the results reveal that broad participation and engagement is the most prevalent facilitator, particularly in hospitals, health centers, primary care organisations, and non-profit organizations. Tailored communication strategies are spread in specialized settings such as mental illness centers and diabetes facilities, underscoring the importance of customized communication to meet specific patient needs. Leader support and health literacy training are also prevalent, particularly in primary care

and non-profit organizations, emphasizing the need for strong leadership and continuous professional development. Conversely, despite financial resources not being among the most frequently reported facilitators overall, they have a particular incidence in healthcare organizations highlighting the crucial role of adequate funding in these settings to support and sustain health literacy initiatives effectively.

### Frequency and distribution of OHL barriers

As for OHL barriers, the article analysis identified a series of elements hindering the implementation of OHL initiatives (Fig. 5).

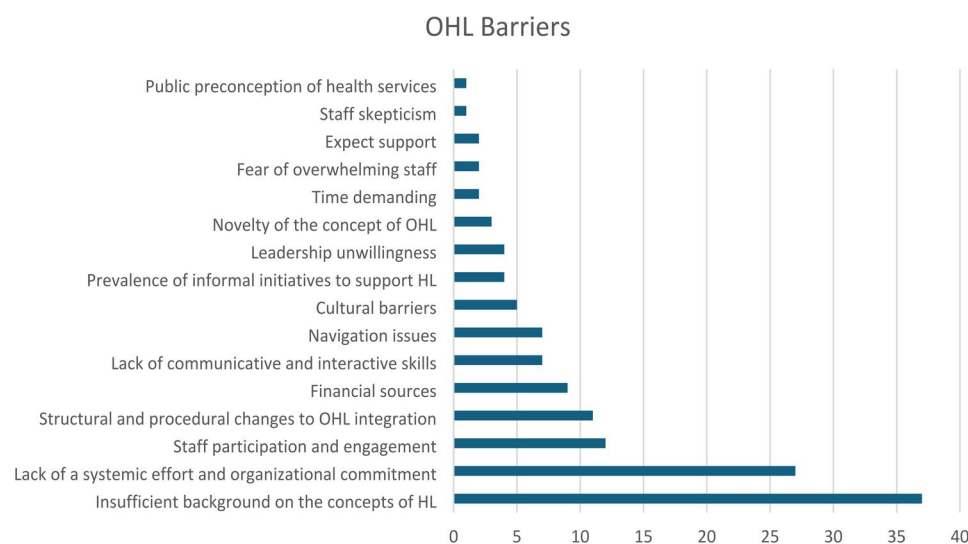
Insufficient background on the concepts of HL and HL demand mismatch emerged as the most frequently reported barrier, appearing in 37 articles (See SS1, studies 1, 2, 3, 4, 5, 6, 9, 11, 12, 14, 18, 19, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 33, 35, 37, 38, 39, 41, 43, 46, 47, 48, 49, 51, 59, and 62), which constitutes 59.7% of the total articles reviewed. This barrier is notably frequent in hospitals, health centers, and healthcare organizations. Specifically, hospitals and healthcare organizations each reported this barrier 10 times, while health centers reported it 6 times. This may suggest a pervasive lack of fundamental understanding and alignment with health literacy concepts in these settings, highlighting a critical area for intervention and education. Lack of a systemic effort and organizational commitment was also prominent, noted in 27 articles (43.5%) (See SS1, studies 4, 5, 9, 10, 11, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 28, 33, 34, 35, 37, 39, 40, 44, 45, 47, 57, and 58). This barrier appears extensively across various contexts, particularly in healthcare organizations and hospitals, with 14 and 8 occurrences, respectively. The frequent mention of this barrier underscores the need for organizational-level changes and stronger commitment

to integrate health literacy into healthcare practices effectively. A lack of staff participation and engagement were identified as barriers in 19.4% of the total articles reviewed. This distribution indicates that staff participation and engagement issues are relatively widespread across different healthcare settings. Additionally, region-specific challenges such as cultural barriers in Australia, navigation issues in Germany and the presence of informal initiatives in Italy highlight the need for tailored strategies to address these unique barriers effectively. Results underscores the importance of a comprehensive approach and context-specific interventions to improving OHL.

### Quality assessment

The quality and credibility of the studies was evaluated based on criteria outlined in the methodological section, using the KMET tool for empirical studies and the JBI Critical Appraisal Checklist for non-empirical studies. These assessments facilitated the identification of studies with strong methodological structures and those with certain limitations. Table 3 provides a detailed distribution of study quality and credibility for both empirical and non-empirical research, using established scoring thresholds as benchmarks.

Quality assessment identified some key correlations between study quality, outcomes, OHL facilitators, and barriers. Among outcomes, OHL improvement was observed in high-quality studies ( $n=10$ ; 24.39%), while facilitated or strengthened HL responsiveness in healthcare organizations featured similarly ( $n=9$ ; 21.95%). These findings highlight the importance of systemic efforts in improving health literacy. Regarding facilitators, team participation and engagement appeared most frequently ( $n=21$ ; 51.22%), followed by health literacy



**Fig. 5** Distribution of OHL barriers

**Table 3** Distribution of quality and credibility scores among studies ( $n=62$ )

|                                     | Score > 0.75<br>(Good quality)                          | Between 0.55 and 0.75<br>(Adequate quality)                 | Score < 0.55<br>(Poor quality)                     |
|-------------------------------------|---|---|--|
| Empirical studies<br>( $n=51$ )     | 66.67%, ( $n=34$ )                                      | 31.37%, ( $n=16$ )  | 1.96%, ( $n=1$ )                                   |
| Non-empirical studies<br>( $n=11$ ) | High credibility studies, (%), $n$<br>63.64%, ( $n=7$ ) | Moderate credibility studies, (%), $n$<br>36.36%, ( $n=4$ ) | Low credibility studies, (%), $n$<br>0%, ( $n=0$ ) |

training and integration practices ( $n=20$ ; 48.78%), underscoring their role in fostering robust OHL. For barriers, insufficient health literacy background or a mismatch with organizational demands was the most commonly addressed ( $n=23$ ; 56.10%). The lack of systemic effort and organizational commitment also emerged as a significant barrier ( $n=20$ ; 48.78%), reflecting its prevalence in OHL-focused research. These findings suggest that high-quality studies are strongly associated with facilitators emphasizing systemic and participatory approaches, while barriers like insufficient HL background and organizational commitment represent focal challenges.

## Discussion

Our systematic review provides a comprehensive exploration of OHL, examining its definitions, assessment tools, outcomes, facilitators, and barriers. The findings underscore the growing interest and advancements in OHL, reflecting an increased recognition of the critical role healthcare organizations play in enhancing health literacy. The chronological distribution of studies indicates a significant increase in research activity over recent years, particularly from 2019 onwards, peaking in 2021. This surge aligns with the global emphasis on health literacy and patient-centered care, especially in the context of the COVID-19 pandemic, which underscored the critical need for effective health communication and literacy. The geographical distribution of studies reveals a predominant focus within the European Union and the United States, with significant contributions from Australia. This distribution reflects regional priorities and healthcare frameworks that support health literacy initiatives, suggesting a possible correlation between regional healthcare policies and the emphasis on OHL research. The review highlights the evolution of OHL definitions, identifying seven distinct definitions across the selected studies. Brach's definition [13], which emphasizes the integration of policies, practices, and systems to facilitate navigation, understanding, and use of health information, emerged as the most widely cited. This widespread acceptance suggests a consensus on the comprehensive nature of this definition. However, the existence of multiple definitions indicates ongoing efforts to refine and contextualize OHL to address specific organizational needs and settings. This variability in definitions reflects the

dynamic and multifaceted nature of OHL, emphasizing the need for adaptable and context-specific approaches. These findings are consistent with existing literature, which highlights the evolving understanding of OHL. Sørensen et al. [1] and Kickbusch et al. [4] emphasize the need for comprehensive and adaptable definitions that reflect the complexity of healthcare environments and the diverse needs of patients. The alignment with these previous works suggests that the field is moving towards a more integrated and holistic understanding of OHL.

The review highlights the crucial role of assessment tools in evaluating OHL. The HLHO-10 tool, which assesses ten attributes, is the most frequently used, suggesting its comprehensiveness and adaptability. Other tools, such as Org-HLR and OHLO, also play significant roles, each contributing unique perspectives on health literacy. The consistent emphasis on attributes like effective communication, continuous improvement, and leadership support underscores these elements as foundational to OHL. This alignment with Brach et al.'s [13] attributes suggests a consensus on key components necessary for effective OHL implementation. However, the variation in tool usage also indicates that there is no one-size-fits-all approach, and different tools may be more appropriate in different contexts. As highlighted by Sørensen et al. [15] and Kickbusch et al. [4] there is a need for tools that can effectively capture the multifaceted nature of OHL and provide actionable insights for improvement. The outcomes of OHL interventions, such as general OHL improvement and enhanced health literacy responsiveness, highlight the tangible benefits of these initiatives. The association between higher OHL scores and improved perceived quality of care suggests that health literate organizations are better equipped to meet patient needs, thereby enhancing overall healthcare quality. The focus on targeted strategies to enhance OHL and improve public health outcomes reflects a proactive approach to leveraging OHL for broader health benefits. The impact of health literacy-sensitive communication on patient outcomes further underscores the importance of effective communication in achieving positive health outcomes. These findings align with existing literature emphasizing the need for health systems to be health literate, supporting both patients and healthcare professionals [57, 72, 87].

The review identifies key facilitators of OHL implementation, with team participation and engagement emerging as the most frequently reported facilitator. This highlights the importance of collaborative approaches involving diverse stakeholders. Health literacy training and the integration of health literacy practices emphasize the need for continuous professional development and the embedding of health literacy into routine practices. Effective communication strategies, both written and oral, underscore the critical role of clear and accessible communication in supporting health literacy. Leader support highlights the importance of strong leadership in driving health literacy initiatives. Strategic planning, integration of OHL and patient-centered principles into policies, and easy access and navigation to services are also essential facilitators. These findings suggest that successful OHL implementation requires a multifaceted approach that includes strong leadership, strategic planning, effective communication, and continuous professional development. These facilitators are consistent with previous studies that emphasize the importance of a supportive organizational culture and leadership in promoting health literacy. Farmanova et al. [77] and Sørensen et al. [1] highlight the critical role of leadership and team engagement in driving successful health literacy initiatives. The findings also align with studies by Brach et al. [57], which stress the need for integrated and sustained efforts to enhance health literacy within organizations.

Conversely, barriers such as insufficient background on health literacy concepts and lack of systemic effort and organizational commitment highlight significant challenges. This indicates a widespread disparity in foundational health literacy knowledge within healthcare settings, highlighting a critical area for intervention and education. These barriers suggest a pervasive gap in foundational health literacy knowledge within healthcare settings, which is consistent with the findings of Farmanova et al. [77], Kaper et al. [31] and Brach et al. [13, 57]. Addressing these barriers requires comprehensive strategies that include foundational education on health literacy concepts and systemic organizational changes. The challenges related to staff participation and engagement indicate the need for targeted interventions to mobilize healthcare professionals. Structural and procedural variations, financial constraints, and cultural barriers further complicate OHL implementation, underscoring the need for tailored and context-specific approaches.

#### **Strengths of the study**

This systematic review has several notable strengths. First, it followed a rigorously predefined and registered protocol (PROSPERO ID CRD42024537425) and adhered strictly to the PRISMA guidelines, enhancing methodological transparency and reproducibility. The

comprehensive search strategy across multiple prominent electronic databases and the Google Scholar search engine, coupled with analysis of bibliographies from relevant systematic reviews, ensured thorough identification of studies. Including empirical and non-empirical studies enabled a robust synthesis of both practical applications and theoretical insights into OHL, providing a comprehensive understanding of the topic. Additionally, the absence of restrictions on study design or geographical location allowed for broad inclusivity and increased the applicability of findings across diverse healthcare contexts. The rigorous methodological quality and credibility assessments further strengthened the reliability and validity of the review findings, with the majority of included studies (61 out of 62) demonstrating adequate or high methodological quality.

#### **Limitations of the study**

Despite these strengths, some limitations must be acknowledged. The review was limited to studies published in English, which may exclude relevant research published in other languages, potentially resulting in an incomplete global representation of OHL efforts. Although this language bias is common in systematic reviews, it remains a notable constraint. Furthermore, the heterogeneity introduced by including studies from diverse healthcare settings, varying study designs, and populations presents challenges in direct comparisons and result synthesis, potentially affecting generalizability. Reliance on self-reported data in many studies could also introduce reporting bias, as organizations may overestimate their health literacy capabilities. Finally, due to the rapidly evolving field of OHL, newer studies may not have been fully captured, suggesting the necessity of regular updates and reviews to maintain relevance and accuracy in the rapidly developing area of organizational health literacy research.

#### **Conclusion**

This systematic review provides a comprehensive overview of the current state of OHL research, offering valuable insights into definitions, assessment tools, outcomes, facilitators, and barriers. The findings underscore the growing recognition of OHL's importance and the need for systemic, context-sensitive approaches to enhance health literacy within healthcare organizations. While significant progress has been made in developing and validating OHL definitions and assessment tools, which are crucial for measuring and improving health literacy within organizations, the focus must now shift to interventions. The review highlights the positive outcomes associated with OHL interventions, such as improved quality of care and enhanced health literacy responsiveness, emphasizing the tangible benefits of

these initiatives. Implementing OHL practices can lead to better patient experiences and overall healthcare quality. Facilitators such as team participation, health literacy training, and effective communication strategies are essential for the successful implementation of OHL practices. These elements underscore the importance of a collaborative approach and the need for strong leadership and organizational commitment. Conversely, barriers like insufficient health literacy knowledge and lack of systemic effort indicate areas where further attention and targeted strategies are required. Therefore, the next step in OHL research needs to focus on identifying and evaluating effective interventions rather than developing more tools and measures. A program of research to design, implement, and evaluate interventions for building organizational health literacy is necessary. As recommended by Lloyd et al. [88] and Willis et al. [89] government-initiated interventions and policies are powerful strategies to enhance organizational capacity for improving health literacy. Only by doing so, healthcare organizations can bridge the health literacy gap, enhance patient satisfaction, and improve overall healthcare quality. This ongoing effort is critical for ensuring that health services are accessible, equitable, and effective for all patients, ultimately contributing to better public health outcomes.

### Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12913-025-12775-w>.

Supplementary Material 1.

### Acknowledgements

Not applicable.

### Authors' contributions

N.P. Led the study design, conducted the literature review, conducted the systematic search, participated in data extraction and interpretation, performed statistical analysis, and wrote the manuscript. L.C. Supervised the study, led the study design, assessed the quality of articles included in the systematic review and contributed to manuscript revisions. C.F. Assessed the quality of articles included in the systematic review, contributed to manuscript revisions. E.C. Contributed to manuscript revisions. U.G. Provided critical feedback, and reviewed the final manuscript for important intellectual content. All authors have read and approved the final manuscript.

### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Data availability

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

### Declarations

#### Ethics approval and consent to participate

This systematic review did not involve human participants, animals, or personal data requiring formal ethical approval. However, all included studies adhered to ethical guidelines and obtained relevant approvals where necessary.

### Consent for publication

Not applicable.

### Competing interests

The authors declare no competing interests.

Received: 5 February 2025 / Accepted: 17 April 2025

Published online: 25 April 2025

### References

- Sørensen K, Van den Broucke S, Fullam J, et al. Health literacy and public health: a systematic review and integration of definitions and models. *BMC Public Health*. 2012;12:80. <https://doi.org/10.1186/1471-2458-12-80>.
- Berkman ND, Sheridan SL, Donahue KE, Halpern DJ, Crotty K. Low health literacy and health outcomes: an updated systematic review. *Ann Intern Med*. 2011;155(2):97–107. <https://doi.org/10.7326/0003-4819-155-2-201107190-00005>.
- World Health Organization. World health statistics 2023: monitoring health for the SDGs. World Health Organization; 2023. Available from: <https://www.who.int/publications/i/item/9789240074323>. Accessed 30 Jan 2025.
- Kickbusch I, Pelikan JM, Apfel F, Tsouros AD. Health literacy: the solid facts. Copenhagen: World Health Organization; 2013. ISBN: 9789289000154.
- Rozenblum R, Bates DW. Patient-centred healthcare, social media and the internet: the perfect storm? *BMJ Qual Saf*. 2013;22(3):183–6. <https://doi.org/10.1136/bmjqs-2012-001744>.
- Rudd RE. Health literacy skills of US adults. *Am J Health Behav*. 2007;31. <https://doi.org/10.5555/ajhb.2007.31.suppl.S8>.
- Rudd RE. Needed action in health literacy. *J Health Psychol*. 2013;18:1004–10. <https://doi.org/10.1177/1359105312470128>.
- Rudd ER. Health literacy developments, corrections, and emerging themes. In: Schaeffer D, Pelikan JM, editors. *Health literacy: forschungsstand und perspektiven*. 1st ed. 2017. pp. 19–31.
- Rudd RE, Anderson JE, Oppenheimer S, Nath C. Health literacy: an update of medical and public health literature. In: *Review of adult learning and literacy*, vol 7. New York: Routledge; 2023. p. 175–204.
- Palumbo R. Designing health-literate health care organizations: a literature review. *Health Serv Manag Res*. 2016;29:79–87. <https://doi.org/10.1177/0951484816639741>.
- Centers for Disease Control and Prevention (CDC). *Healthy People 2020*. Wayback Machine. 2020. Available from: <https://wayback.archive-it.org/5774/20220413175448/https://www.healthypeople.gov/2020/tools-resources/Evidence-Based-Resources>. Accessed 30 Jan 2025.
- Rudd RE, Parnell TA. Health literacy: insights for action. In: *Care of vulnerable populations: a population health approach to health disparities for nurses*. 2022.
- Brach C, Dreyer BP, Schyve P, et al. Attributes of a health literate organization. *Inst Med*. 2012. <https://doi.org/10.31478/201206a>.
- Baumeister A, Chakraverty D, Aldin A, et al. The system has to be health literate, too - perspectives among healthcare professionals on health literacy in transcultural treatment settings. *BMC Health Serv Res*. 2021;21:1–16. <https://doi.org/10.3389/fpubh.2024.1415588>.
- Sørensen K, Levin-Zamir D, Duong TV, et al. Building health literacy system capacity: a framework for health literate systems. *Health Promot Int*. 2021;36:i13–23. <https://doi.org/10.1093/heapro/daab153>.
- Aaby A, Palmer S, Maindal HT. Fit for diversity: a staff-driven organizational development process based on the organizational health literacy responsiveness framework. *HLRP Health Lit Res Pract*. 2020;4(2):e79–83. <https://doi.org/10.3928/24748307-20200129-01>.
- Aaby A, Maindal HT. Identifying health literacy responsiveness improvement ideas in Danish health centers: initial testing of the OS! Approach. *HLRP Health Lit Res Pract*. 2022;6(3):e232–8. <https://doi.org/10.3928/24748307-20220825-01>.
- Aaby A, Simonsen CB, Ryom K, Maindal HT. Improving organizational health literacy responsiveness in cardiac rehabilitation using a Co-Design methodology: results from the heart skills study. *Int J Environ Res Public Health*. 2020;17(3):1015. <https://doi.org/10.3390/ijerph17031015>.
- Annarumma C, Palumbo R. Contextualizing health literacy to health care organizations: exploratory insights. *J Health Manag*. 2016;18(4):611–24. <https://doi.org/10.1177/0972063416666348>.

20. Annarumma C, Palumbo R, Cavallone M. Who empowers whom? The role of organizational health literacy in empowering patients. *Sinergie*. 2017;35(104):11–27. <https://doi.org/10.7433/s104.2017.01>.
21. Beese AS, Nicca D, Jaks R, Stuermer N, De Gani SM. How do primary care organizations rate their level of organizational health literacy? Results of a Swiss pilot study. *Int J Environ Res Public Health*. 2022;19(23):16139. <https://doi.org/10.3390/ijerph192316139>.
22. Bonaccorsi G, Romiti A, Ierardi F, et al. Health-literate healthcare organizations and quality of care in hospitals: a cross-sectional study conducted in Tuscany. *Int J Environ Res Public Health*. 2020;17(7):2508. <https://doi.org/10.3390/ijerph17072508>.
23. De Gani SM, Nowak-Flück D, Nicca D, Vogt D. Self-assessment tool to promote organizational health literacy in primary care settings in Switzerland. *Int J Environ Res Public Health*. 2020;17:9497. <https://doi.org/10.3390/ijerph17249497>.
24. Ernstmann N, Halbach S, Kowalski C, Pfaff H, Ansmann L. Measuring attributes of health literate health care organizations from the patients' perspective: development and validation of a questionnaire to assess health literacy-sensitive communication (HL-COM). *Z Evid Fortbild Qual Gesundheitswes*. 2017;121:58–63. <https://doi.org/10.1016/j.zefq.2016.12.008>.
25. Grabeel KL, Heidel RE, Oelschlegel S, Rudd R. Collaborative updating of an organizational health literacy tool confirms medical librarians' leadership roles. *Health Inf Libr J*. 2022;39:142–54. <https://doi.org/10.1111/hir.12390>.
26. Groene RO, Rudd RE. Results of a feasibility study to assess the health literacy environment: navigation, written, and oral communication in 10 hospitals in Catalonia, Spain. *J Commun Healthc*. 2011;4:227–37. <https://doi.org/10.1179/1753807611Y.00000000005>.
27. Hayran O, Özer O. Organizational health literacy as a determinant of patient satisfaction. *Public Health*. 2018;163:20–6. <https://doi.org/10.1016/j.puhe.2018.06.011>.
28. Hayran O, Atac O, Özer O. Assessment of organizational health literacy in a group of public, private, and university hospitals in Istanbul. *J Health Syst Policy*. 2019;1:47–59.
29. Henrard G, Vanmeerbeek M, Buret L, Rademakers J. Dealing with health literacy at the organisational level: French translation and adaptation of the Vienna health literate organisation self-assessment tool. *BMC Health Serv Res*. 2019;19:1–9. <https://doi.org/10.1186/s12913-019-3955-y>.
30. Henrard G, Vanmeerbeek M, Dardenne N, Rademakers J. The Vienna self-assessment questionnaire: a usable tool towards more health-literate hospitals? Explorative case studies in three hospitals in Belgium. *BMC Health Serv Res*. 2021;21:1–12. <https://doi.org/10.1186/s12913-021-06211-y>.
31. Kaper M, Sixsmith J, Meijering L, et al. Implementation and long-term outcomes of organisational health literacy interventions in Ireland and the Netherlands: a longitudinal mixed-methods study. *Int J Environ Res Public Health*. 2019;16:4812. <https://doi.org/10.3390/ijerph16234812>.
32. Klockmann I, Jaß L, Härter M, von dem Knesebeck O, Lüdecke D, Heeg J. Multi-staged development and pilot testing of a self-assessment tool for organizational health literacy. *BMC Health Serv Res*. 2023;23:1407. <https://doi.org/10.1186/s12913-023-10448-0>.
33. Kowalski C, Lee SYD, Schmidt A, et al. The health literate health care organization 10 item questionnaire (HLHO-10): development and validation. *BMC Health Serv Res*. 2015;15:1–9. <https://doi.org/10.1186/s12913-015-0707-5>.
34. Kruzliakova N, Porter K, Ray PA, et al. Understanding and advancing organizational health literacy within a public health setting. *HLRP Health Lit Res Pract*. 2021;5:e35–48. <https://doi.org/10.3928/24748307-20210114-01>.
35. Laing R, Thompson SC, Elmer S, Rasiiah RL. Fostering health literacy responsiveness in a remote primary health care setting: a pilot study. *Int J Environ Res Public Health*. 2020;17:2730. <https://doi.org/10.3390/ijerph17082730>.
36. Lubasch JS, Voigt-Barbarowicz M, Ernstmann N, et al. Organizational health literacy in a hospital—Insights on the patients' perspective. *Int J Environ Res Public Health*. 2021;18:12646. <https://doi.org/10.3390/ijerph182312646>.
37. Mehlig A, Locher V, Hornberg C. Barriers to organizational health literacy at public health departments in Germany. *HLRP Health Lit Res Pract*. 2021;5:e264–71. <https://doi.org/10.3928/24748307-20210809-01>.
38. Meldgaard M, Maimburg RD, Jensen CS, Rasmussen B, Maindal HT. Organizational health literacy responsiveness within Danish maternity care: a qualitative study exploring health professionals' experiences. *Health Lit Commun Open*. 2023;1:2257129. <https://doi.org/10.1080/28355245.2023.2257129>.
39. Palumbo R, Carmela A. The importance of being health literate: an organizational health literacy approach. In: Proceedings of excellence in services international conference. Liverpool: Liverpool John Moores University; 2014. p. 247–62.
40. Park G, Kim DH, Shao C, et al. Organizational assessment of health literacy within an academic medical center. *Am J Surg*. 2023;225:129–30. <https://doi.org/10.1016/j.amjsurg.2022.08.004>.
41. Prince LY, Schmidtke C, Beck JK, Hadden KB. An assessment of organizational health literacy practices at an academic health center. *Qual Manag Health Care*. 2018;27:93–7. <https://doi.org/10.1097/QMH.0000000000000162>.
42. Rathmann K, Vockert T, Wetzel LD, Lutz J, Dadaczynski K. Organizational health literacy in facilities for people with disabilities: first results of an explorative qualitative and quantitative study. *Int J Environ Res Public Health*. 2020;17:2886. <https://doi.org/10.3390/ijerph17082886>.
43. Robertson TW, Manganello JA, Wu M, et al. Organizational health literacy and health among New York state medicaid members. *HLRP Health Lit Res Pract*. 2023;7:e154–64. <https://doi.org/10.3928/24748307-20230822-01>.
44. Rosenfeld L, Miller A, Garverich S, et al. Performing an organizational health literacy assessment in a shelter serving people with mental illness. *HLRP Health Lit Res Pract*. 2022;6:e167–74. <https://doi.org/10.3928/24748307-20220615-01>.
45. Rosenfeld LE, McCullagh K, King CJ, Torres M, Litt JS. Organizational health literacy as a tool for health equity: application in a high-risk infant follow-up program. *Children*. 2023;10:1658. <https://doi.org/10.3390/children10101658>.
46. Singer D, Howe C, Adame T, et al. A psychometric analysis of the health literate health care organization-10 item questionnaire. *HLRP Health Lit Res Pract*. 2022;6:e137–41. <https://doi.org/10.3928/24748307-20220518-01>.
47. Stuermer N, De Gani SM, Beese AS, et al. Health professionals' experience with the first implementation of the organizational health literacy self-assessment tool for primary care (OHL Self-AsseT) – a qualitative reflexive thematic analysis. *Int J Environ Res Public Health*. 2022;19:15916. <https://doi.org/10.3390/ijerph192315916>.
48. Tong Y, Wu Y, Han Z, et al. Development and validation of the health literacy environment scale for Chinese hospitals from patients' perspective. *Front Public Health*. 2023;11:1130628. <https://doi.org/10.3389/fpubh.2023.1130628>.
49. Trezona A, Dodson S, Osborne RH. Development of the organisational health literacy responsiveness (Org-HLR) framework in collaboration with health and social services professionals. *BMC Health Serv Res*. 2017;17:513. <https://doi.org/10.1186/s12913-017-2465-z>.
50. Trezona A, Dodson S, Osborne RH. Development of the organisational health literacy responsiveness (Org-HLR) self-assessment tool and process. *BMC Health Serv Res*. 2018;18:694. <https://doi.org/10.1186/s12913-018-3499-6>.
51. Trezona A, Dodson S, Fitzsimon E, LaMontagne AD, Osborne RH. Field-testing and refinement of the Organisational Health Literacy Responsiveness self-assessment (Org-HLR) tool and process. *Int J Environ Res Public Health*. 2020;17(3):1000. <https://doi.org/10.3390/ijerph17031000>.
52. Weaver NL, Wray RJ, Zellin S, Gautam K, Jupka K. Advancing organizational health literacy in health care organizations serving high-needs populations: a case study. *J Health Commun*. 2012;17(sup3):55–66. <https://doi.org/10.1080/10810730.2012.714442>.
53. Wiecezorek CC, Ganahl K, Dietscher C. Improving organizational health literacy in extracurricular youth work settings. *Health Lit Res Pract*. 2017;1(4):e233–8. <https://doi.org/10.3928/24748307-20171101-01>.
54. Wray R, Weaver N, Adsul P, Gautam K, Jupka K, Zellin S, Goggins K, Vijaykumar S, Hansen N, Rudd R. Enhancing organizational health literacy in a rural Missouri clinic: a qualitative case study. *Int J Health Care Qual Assur*. 2019;32(5):788–804. <https://doi.org/10.1108/IJHCQA-05-2018-0131>.
55. Wynia MK, Osborn CY. Health literacy and communication quality in health care organizations. *J Health Commun*. 2010;15(sup2):102–15. <https://doi.org/10.1080/10810730.2010.499981>.
56. Ayre J, Bonner C, Gonzalez J, et al. Integrating consumer perspectives into a large-scale health literacy audit of health information materials: learnings and next steps. *BMC Health Serv Res*. 2023;23:416. <https://doi.org/10.1186/s12913-023-09434-3>.
57. Brach C. The journey to become a health literate organization: a snapshot of health system improvement. In: *Health Literacy*. Amsterdam: IOS Press; 2017. p. 203–37. <https://doi.org/10.3233/978-1-61499-790-0-203>.
58. Brach C, Borsky A. How the US agency for healthcare research and quality promotes health literate health care. *Stud Health Technol Inf*. 2020;269:313. <https://doi.org/10.3233/SHIT200046>.
59. Brega AG, Hamer MK, Albright K, et al. Organizational health literacy: quality improvement measures with expert consensus. *HLRP Health Lit Res Pract*. 2019;3:e127–46. <https://doi.org/10.3928/24748307-20190503-01>.
60. Charoghchian Khorasani E, Tavakoly Sany SB, Mahdizadeh M, Doosti H, Tehrani H, Moghzi M, Jafari A, Peyman N. Attributes of organizational health literacy in health care centers in Iran: a qualitative content analysis study. *Int J*

- Environ Res Public Health. 2022;19(4):2310. <https://doi.org/10.3390/ijerph19042310>.
61. Dietscher C, Pelikan J, Bobek J, Nowak P, World Health Organization. The action network on measuring population and organizational health literacy (M-POHL): a network under the umbrella of the WHO European health information initiative (EHII). *Public Health Panorama*. 2019;5:65–71. <https://doi.org/10.1093/eurpub/ckz185.556>.
  62. Hayran O, Ege SD. How to measure organizational health literacy? In: *Health Literacy-Advances and Trends*. London: IntechOpen; 2023. <https://doi.org/10.5772/intechopen.105524>.
  63. Hübner C, Lorke M, Buchholz A, et al. Health literacy in the context of implant care—Perspectives of (prospective) implant wearers on individual and organisational factors. *Int J Environ Res Public Health*. 2022;19:6975. <https://doi.org/10.3390/ijerph19126975>.
  64. Jansen CJ, van't Jagt K, Reijneveld R, van Leeuwen SA, de Winter E, Hoeks AF. Improving health literacy responsiveness: a randomized study on the uptake of brochures on doctor-patient communication in primary health care waiting rooms. *Int J Environ Res Public Health*. 2021;18:5025. <https://doi.org/10.3390/ijerph18095025>.
  65. Jensen NH, Aaby A, Ryom K, Maingal HT. A CHAT about health literacy – a qualitative feasibility study of the conversational health literacy assessment tool (CHAT) in a Danish municipal healthcare centre. *Scand J Caring Sci*. 2021;35:1250–8. <https://doi.org/10.1111/scs.12943>.
  66. Lloyd J, Dougherty L, Dennis S, et al. Culturally diverse patient experiences and walking interviews: a co-design approach to improving organizational health literacy. *HLRP Health Lit Res Pract*. 2019;3:e238–42. <https://doi.org/10.3928/24748307-20190828-01>.
  67. Lloyd J, Thomas L, Powell-Davies G, Osten R, Harris M. How can communities and organisations improve their health literacy? *Public Health Res Pract*. 2018;28:2821809. <https://doi.org/10.17061/phrp2821809>.
  68. Mastroianni F, Chen YC, Vellar L, et al. Implementation of an organisation-wide health literacy approach to improve the understandability and actionability of patient information and education materials: a pre-post effectiveness study. *Patient Educ Couns*. 2019;102:1656–61. <https://doi.org/10.1016/j.pec.2019.03.022>.
  69. Meldgaard M, Maimburg RD, Damm MF, Aaby A, Peeters A, Maingal HT. The Health Literacy in Pregnancy (HeLP) program study protocol: development of an antenatal care intervention using the opheelia process. *Int J Environ Res Public Health*. 2022;19:4449. <https://doi.org/10.3390/ijerph19084449>.
  70. Murfet GO, Lin S, Ridd JC, et al. Shifts in diabetes health literacy policy and practice in Australia—promoting organisational health literacy. *Int J Environ Res Public Health*. 2023;20:5778. <https://doi.org/10.3390/ijerph20105778>.
  71. Naccarella L, Horwood J. Public libraries as health literate multi-purpose workspaces for improving health literacy. *Health Promot J Aust*. 2021;32:29–32. <https://doi.org/10.1002/hpja.437>.
  72. Palumbo R, Annarumma C, Musella M. Exploring the meaningfulness of healthcare organizations: a multiple case study. *Int J Public Sect Manag*. 2017;30(5):503–18. <https://doi.org/10.1108/IJPSM-10-2016-0174>.
  73. Sentell T, Foss-Durant A, Patil U, et al. Organizational health literacy: opportunities for patient-centered care in the wake of COVID-19. *Qual Manag Health Care*. 2021. <https://doi.org/10.1097/QMH.0000000000000279>.
  74. Smith G, Lui SF, Kalantar-Zadeh K, Bonner A. The shift from individual to organizational health literacy: implications for kidney healthcare leaders and clinicians. *Nephron*. 2024;148(4):349–56. <https://doi.org/10.1159/000534073>.
  75. Vamos CA, Thompson EL, Griner SB, Liggett LG, Daley EM. Applying organizational health literacy to maternal and child health. *Matern Child Health J*. 2019;23(5):597–602. <https://doi.org/10.1007/s10995-018-2687-7>.
  76. Kaper MS, Sixsmith J, Reijneveld SA, de Winter AF. Outcomes and critical factors for successful implementation of organizational health literacy interventions: a scoping review. *Int J Environ Res Public Health*. 2021;18:11906. <https://doi.org/10.3390/ijerph182211906>.
  77. Farmanova E, Bonneville L, Bouchard L. Organizational health literacy: review of theories, frameworks, guides, and implementation issues. *Inquiry*. 2018;55:0046958018757848. <https://doi.org/10.1177/0046958018757848>.
  78. Charoghchian Khorasani E, Tavakoly Sany SB, Tehrani H, Doosti H, Peyman N. Review of organizational health literacy practice at health care centers: outcomes, barriers and facilitators. *Int J Environ Res Public Health*. 2020;17(20):7544.
  79. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Ann Intern Med*. 2009;151(4):264–9. <https://doi.org/10.7326/0003-4819-151-4-200908180-00135>.
  80. Moher D, Booth A, Stewart L. How to reduce unnecessary duplication: use PROSPERO. *BJOG Int J Obstet Gynaecol*. <https://doi.org/10.1111/1471-0528.12657>.
  81. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci*. 2009;4(50):1–15. <https://doi.org/10.1186/1748-5908-4-50>.
  82. Eriksen MB, Frandsen TF. The impact of patient, intervention, comparison, outcome (PICO) as a search strategy tool on literature search quality: a systematic review. *J Med Libr Assoc*. 2018;106:420. <https://doi.org/10.5195/jmla.2018.345>.
  83. Vanderstraeten L, Vanhecke B, Verstraete F. Residual entropies for three-dimensional frustrated spin systems with tensor networks. *Phys Rev E*. 2018;98(4):042145.
  84. Kmet LM. Standard quality assessment criteria for evaluating primary research papers from a variety of fields. Edmonton: Alberta Heritage Foundation for Medical Research Edmonton; 2004.
  85. McArthur A, Klugárová J, Yan HU, Florescu S. Innovations in the systematic review of text and opinion. *JBI Evid Implement*. 2015;13(3):188–95.
  86. International Union for Health Promotion and Education (IUPHE). Health literacy and sustainable development. *Health Promot Int*. 2018. <https://doi.org/10.1177/1757975918814421>.
  87. Pelikan JM. Health-literate healthcare organisations. In: *International handbook of health literacy*. Bristol: Policy Press; 2019. p. 539–54. <https://doi.org/10.51952/9781447344520.ch035>.
  88. Lloyd JE, Song HJ, Dennis SM, Dunbar N, Harris E, Harris MF. A paucity of strategies for developing health literate organisations: a systematic review. *PLoS ONE*. 2018;13:e0195018. <https://doi.org/10.1371/journal.pone.0195018>.
  89. Willis CD, Saul JE, Bitz J, Pompu K, Best A, Jackson B. Improving organizational capacity to address health literacy in public health: a rapid realist review. *Public Health*. 2014;128(6):515–24.

## Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.