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Health literacy continuing education courses and tools for healthcare professionals: a scoping review

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ABSTRACT

Strengthening the health literacy (HL) skills of the healthcare users is a multicomponent process involving the users, the healthcare professionals, the stakeholders, and the environment. Health organizations, universities, private initiatives, and funded projects focused on developing and implementing continuing education courses target at increasing healthcare professionals' HL. This scoping review aimed at reporting the HL continuing education courses for healthcare professionals to enhance their knowledge and skills in identifying and supporting healthcare users with limited HL, and particularly, older people. This review followed the five stages by Arksey and O'Malley framework and the guidelines by Joanna Briggs Institute for scoping reviews. Peer-reviewed papers and gray literature published between years 2000 to 2020 were included in this bibliometric search utilizing four electronic databases (PUBMED, MEDLINE, CINAHL, PSYCHINFO, and Opengrey). Twenty-seven (27) papers met the criteria, including twenty-one (21) full-texts and six (6) other records (website contents, eLearning, and funded projects). There is a lack of HL tools that address the training needs of healthcare professionals working with older adults. Tailored HL tools could benefit healthcare professionals' clinical work by improving their communication with older adults.

KEYWORDS

Training; medical education; health literacy; healthcare professionals; older adults; scoping review

Introduction

Strengthening citizens' Health Literacy (HL) skills is a lifelong process strongly influenced by the interaction among the healthcare professionals, the users, and the healthcare system (World Health Organization, 2013). Health literacy is a well-studied concept for over three decades (Sørensen et al., 2012). One of the first definitions, presented by the Institute of Medicine, defined health literacy as "*the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions*" (Institute of Medicine, 2004). Nutbeam (2000) has distinguished three types of health literacy: functional (reading, writing, and numeracy skills), communicative (skills necessary in social participation), and critical (skills to assess and take

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decisions for own health issues). The most frequently used definition, adopted by World Health Organization, (2013) is the one proposed by Sørensen et al., (2012) describing 12 dimensions of the concept connecting HL with the skills for finding, accessing, evaluating and applying health information in decision-making for all aspects of health (health promotion, disease prevention, and care). Limited HL is associated with higher healthcare costs, fewer preventive strategies, low medical adherence, worse disease management, higher frequency of General Practitioner (GP) consultations and higher utilization of healthcare services by healthcare users (Doyle et al., 2017; Howard et al., 2005; Vandenbosch et al., 2016).

The involvement and collaboration of multiple stakeholders, the users, the healthcare professionals, and the organizations are necessary for healthcare users to build HL skills (World Health Organization, 2013). Methods for identifying and supporting patients with limited HL are not always integrated in health sciences' curricula (Toronto & Weatherford, 2015). The comfort talk and education of family and patients, according to a research study in 12 European countries, were among the five top tasks left unfinished (Jones et al., 2015).

Patients' socioeconomic and cultural characteristics, age, educational level, and linguistic skills could be risk factors for limited HL (Institute of Medicine, 2004; Rajah et al., 2018). Older age is one of them (Chesser et al., 2016; Sudore et al., 2006). As people nowadays live longer, they need skills to effectively manage chronic and age-related diseases (EUROSTAT, 2019). Limited HL among older people is associated with low medication adherence and difficulty to name their medicines (Chesser et al., 2016). The decrease of older adults' cognitive abilities such as processing of information, slower learning and physical impairments constitute barriers in communication of health information (Chesser et al., 2016; Speros, 2009). Nurses consider that when working with older people the latter hold attitudes that are difficult to change, which may become a barrier in communication (Kim & Oh, 2020). Healthcare professionals prioritize the physical care needs (medication, personal care), leaving health education aside and sometimes they do not even consider this task as part of their daily responsibilities toward older healthcare users (Hansen et al., 2017; Jones et al., 2015).

One of the first initiatives to enhance the HL of the healthcare professionals was identified in the USA by Weiss et al., (2007) introducing the health literacy strategies for clinicians. Few years later, the early work in pharmacists' training was presented by Kripalani and Weiss (2006). Since then, there was an increase of the HL continuing education courses for healthcare professionals focusing on enhancing the communication skills with limited HL patients (Brega et al., 2015; IMPACCT Erasmus+, IMPACCT Erasmus+, 2017; Kripalani & Jacobson, 2007). During the past decade, researchers also focused on the health literacy training competencies and practices (Chang et al., 2017; Coleman et al., 2013; Karuranga et al., 2017; Toronto, 2016). Coleman and colleagues using a modified four round Delphi survey, resulted in 62 HL competencies (24 knowledge-27 skills- 11 attitudes) and 32 practices (Coleman et al., 2013). The proposed framework by Coleman and colleagues was further updated to fit the needs of healthcare professionals in Europe, reaching consensus on 56 competencies and 38 practices and highlighting the person-centered and holistic care, critical and communicative HL, oral communication, and HL prioritization of health systems (Karuranga et al., 2017). The person and family-centered approaches were also the most significant competencies for nurses working in any work setting (Toronto, 2016).

A HL higher education curriculum framework was proposed by Saunders et al. (2019) based on their review of specific lesson subject or courses of higher education institutions targeting health profession students. In Saunders et al. review, evidence was extracted on the design, assessment, outcomes, classroom teaching methods and simulation lab for communication training, resource development and HL assessment. The students' curricula and the HL continuing education courses for healthcare professionals provided positive outcomes for the trainees even if there were many methodological issues (heterogeneous outcome measures, no validated measures, type of the study design) (Coleman, 2010; Saunders et al., 2019). In HL continuing education courses for healthcare professionals, there is no adequate evidence to propose specific tools, techniques, or optimal timing for the training to take place (during studies' curriculum or as lifelong training) (Coleman, 2010).

A scoping review exploring the HL tools and training methodologies (the type, the content, delivery, duration, pilot studies and evaluation) for healthcare professionals working in the community, hospital, nursing homes with older healthcare users with limited HL could expand and update previous work in this field (Coleman, 2010; Saunders et al., 2019).

The research questions were:

(1) What are the available HL continuing education courses for healthcare professionals?
(2) What are the specific characteristics of these continuing education courses (methods and tools of delivery, duration, topics, HL tools and techniques, and assessment methods)?
(3) Are there tailored-made HL tools for healthcare professionals working with older people?

Method

A scoping review was conducted from years 2000 until 2020. Since this review focused on different types of evidence and no prior synthesis existed of continuing education courses for healthcare professionals, a scoping method was considered the most appropriate. This review searched records of peer reviewed papers and gray literature such as universities and associations websites, eLearning courses and dissertations (Peters et al., 2015).

Search strategy

The five stages by Arksey and O'Malley (2005) were followed (a) identifying research questions, b) searching relevant studies, c) selecting studies, d) charting, and e) summarizing the results), updated by Levac, Colquhoun & Brien (2010) and guidelines by Joanna Briggs Institute for scoping reviews (Peters et al., 2015). The "*Preferred Reporting Items for Systematic Reviews and Meta-Analyses for scoping reviews extension*" (PRISMA-Scr) checklist was followed and the flow chart was created to assist the reporting of the records (Tricco et al., 2018). The search was conducted from January 2000 to October 2020. The strategy included multiple resources: electronic databases PUBMED, MEDLINE, CINAHL, PSYCHINFO, conference proceedings, and gray literature. Snowball search strategy was used to identify any other relative published source. To identify all the continuing education courses provided to healthcare professionals, we have extended the search to public health

Table 1. Search strategy.

Databases	Keywords
PUBMED, MEDLINE, CINAHL, PSYCHINFO	HL OR patient education (Ti) AND (Knowledge OR education OR training OR tools OR understanding OR awareness) AND (health professionals OR nurses OR health personnel OR healthcare provider)
Additional search for grey literature: Opengrey ProQuest Dissertation and Theses Open Google and google scholar search Universities and associations websites (supplement 1) Erasmus+ project results database (https://ec.europa.eu/info/education/set-projects-education-and-training/find-funded-projects_en)	HL training and Healthcare professionals

organizations and national health systems (e.g., World Health Organization, Centers for Disease Control and Prevention, NHS) and organizations providing continuing education (public and private universities, Erasmus+ databases).

The keywords that were used as decided by the research team are presented in Table 1. In gray literature search, we selected to proceed with broader search terms, to identify a variety of sources which are publicly uploaded.

Selection of the studies

The selection of the studies followed three stages. Initially, the senior author with the assistance of research team screened all titles and abstracts extracted from the databases based on the eligibility criteria set by the research team. A second author screened the selected full texts and other resources for eligibility. The research team reviewed the results and discussed discrepancies to come to a consensus. The senior author was trained to the selection process of the systematic and scoping reviews before the start of this review. Records were included if they: (a) were published in peer-reviewed journals or were gray literature (dissertations, conference proceedings), or were published on websites of public health organizations, national health systems, academic institutions, and continuing education courses (b) were published in the English or Greek language; (c) were published during the time period 2000 to 2020; (d) were related to HL training for healthcare professionals.

Records were excluded if the HL training courses and tools: (1) focused on other target groups and not on healthcare professionals, (2) were part of a university curriculum of undergraduate or postgraduate level, (3) were described as part of a study protocol as the searched focused to implemented continuing education courses, (4) were part of conference abstracts or proceedings without providing further information on the implementation, (5) were only announced as part of website post but not conducted, or (6) were indirectly provided to healthcare professionals as part of downloadable resources about HL.

If there were websites and platforms without direct access to training and tools, or if the information was missing from the published documents, the authors contacted the organizations and researchers for detailed information on the development and implementation of the specific curriculum. In total, eight researchers were approached and, in all cases, but one they provided adequate information about their courses. The research team, all with

expertise in HL research and health education, gathered all related information provided by the course developers and all other available online courses material and assessed their eligibility according to the aim of the scoping review and agreed inclusion criteria by research team.

Charting data and reporting

The data extracted were included in a worksheet with information on the number of all titles, abstracts, and selected papers. The categories reported for the selected papers included the authors, year of publication, study design, target population, study aim, intervention contents, structure and duration, and outcome measures. The available continuing education courses were further charted by one researcher (AE), including information about the author, year, participants, type of learning method, training tools, type of intervention or training, HL strategies and tools, pilot-test or evaluation available, other relevant studies, and duration/cost (Table 2). A second researcher (AK) confirmed the categorization and the data included in each category. Any disagreements about the selection process were resolved by the research team (AE, AK, MR).

A second-order categorization of the continuing education courses followed providing as an outcome the most popular topics of the courses. The categories emerged after research team consensus. Authors have met several times to decide on the type and number of categories.

Full papers were archived in Mendeley Reference Manager under the file name scoping review.

Results

Search and selection of studies

The initial search of the databases provided 3,787 citations. Searching the gray literature and health organizations, universities and governmental or not-for-profit websites, 48 additional records were retrieved. After removal of duplicates, the titles, abstracts, and additional resources were screened by the researcher, yielding 75 full-texts and 13 additional records (snowball search: seven full-texts and six website content). According to the eligibility criteria, researchers screened all full-texts and website content. Finally, 27 records were selected (21 full papers, one dissertation, one Vocational and Educational training and four eLearning courses) to be included in the mapping. Figure 1 describes the flow of the search and selection according to PRISMA-Scr.

General characteristics of the training

The majority of continuing education courses and tools were developed and implemented in the United States of America (55.5% of studies, or 15 out of 27) (Allenbaugh et al., (2019); Callahan et al., (2013); Center of Disease Control, (2019); Centre of Disease Control, (2018); Coleman & Fromer, (2015); DeWalt et al., (2011); Green et al., (2014); Kripalani et al., (2006), 2011; Kripalani & Jacobson, (2007); Mackert et al., (2011); Miller-Scott & Lauer, (2014); Pagels et al., (2015); Rudd, (2010a); University at Albany Centre for Public Health

Table 2. Studies on the training courses and tools for healthcare professionals working with older people with limited HL skills.

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
1. School of Public Health, University at Albany, SUNY 2006	for medical and public health staff addressing issues to enhance LHL people (includes reference on the difficulties of older adults)	Open online course eLearning	• Slide show with case studies • Multiple questions • Video tutorials • Use of images and sketches • Matching exercise • Quizzes • Evaluation	Course: Strategies for addressing LHL 2 modules: **Introduction (75 slide cards)** (definition of HL -fundamental, scientific, civic, cultural-, relation to public health, domains of HL, coping strategies of the LHL, recognising LHL, consequences of LHL- 1hour/ **Strategies for addressing LHL (64 slide cards)** (barriers of good communication in public health-examples, techniques to improve communication) (1 hour) (video tutorial doctor communication and stigma of LHL)	• Remember the intended audience • Myths and realities • use plain language (simplify, chunk, be active • Limit information • Demonstrate or illustrate • Slow down • Use strategies to confirm info (teach-back or "show me" • Apply good design principles	Not publicly available data. Evaluation collected by participants to the course	N/A	2 hours/Free access to course
2. Kripalani et al, 2006	Medical residents.	Face to face training Objective Structured Clinical Exam (OSCE) rooms Video feedback session	**Workshop** • Practice with standardised patient • video, • lectures, • break-out sessions • Handouts	• define health literacy • discuss the role of health literacy in patient care. • Identify two red flags for LHL • Demonstrate the use of 2 techniques recommended in communication with LHL) • Video feedback session of the SP encounter **Objective Structured Clinical Exam (OSCE) rooms** • The resident has to explain the diagnosis and provide counselling • Use of a standardized patient	• American Medical Association Foundation health literacy toolkit (plain language, limit info, demonstrate-illustrate, slow down, teach-back, encourage questions- Ask Me3 • Four Habits Model of Kaiser Permanente (communication programme for medical interviews) • Use plain language (simplify and chunk) • Teach back technique • Use resources and illustration	Yes (93 first, second and third year residents working with 80% people over 60 years old) Emory Internal Medicine Residency Training Program Positive evaluation of the training	Kripalani's training has been adapted in Mackert et al, 2011	1 day: 30 min standardised patient encounter 90' workshop 2 days: 25' video feedback and 5' program evaluation/ Free access to material

(*Continued*)

Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
3. Rudd, 2010	work groups from Social Service Agencies, Hospitals, and State Departments of Public Health.	Face to face training (available online resources at the HSPH Health Literacy website)	• Pre-workshop assignment • Downloadable resources • ice breaker, • brief discussion, • assessments - evaluation, • follow up	Readability workshop as part of the Health Literacy studies Literacy definitions Scoring of the readability tools	Readability tools SMOG, SAM, PMOSE-IKIRSCH, NUMBERS summation, Use of resources and illustration (consent form, health history form, food label	Yes (work groups from Social Service Agencies, Hospitals, and State Departments of Public Health).	Rudd's training programme adapted in Goto et al, 2014	3 hours/ free access to material
4. DeWalt et al, 2011 (published and updated version of DeWalt et al, 2010) Updated second edition by Brega et al, 2015	staff at a practice, including physicians, nurses, receptionists, and business staff	debriefing call for the Health Literacy Toolkit	PDSA model Lectures, Videos, Handouts	improving spoken communication, improving written communication, improving self-management and empowerment, and improving supportive systems and medication adherence	Tool 1 Form a Team, Tool 2 Assess your Practice, Tool 3 Raise Awareness, Tool4 Tips for communication clearly, Tool5 the teach back Method, Tool6 Follow up with patients, Tool 7 Telephone considerations, Tool8 Brown Bag medication Review, Tool 9 How to Address Cultural and Language differences, Tool 10. Culture and other considerations, Tool 11. Design easy to read material, tool 12 Use Health education material effectively, tool13 Making your practice easy to navigate, tool 14. creating a welcoming front desk and Lobby area, Tool 15 Encourage questions, Tool 16 Make action plans, Tool 17 Improve medication adherence and accuracy, Tool 18. Get patients feedback, Tool 19. Link Patients to non-medical support, Tool 20 Medication resources, Tool 21 Using health resources in your community, Tool 22 Use Literacy resources in your community	Yes (Tested in 8 practices working with adults or pediatric patients)	Published data on implementation by: • 12 practices incl. patients over 65 years old (Mabachi et al, 2016) • 2 practices incl. patients over 65 years old (Weis et al, 2016) • 4 practices incl. patients over 65 years old (Brega et al, 2015) • 1 practice: rheumatology patients mean age 50 (Hirsch et al, 2020)	Free access to material

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
5. Kripalani et al, 2011	Physicians	Face to face training	Didactic and interactive methods Discussions Breakout sessions for the communication techniques Role playing Handouts	Medication counselling workshop Definition of adherence and persistence, forms of non-adherence) Health effects of non-adherence Factors contributing to non-adherence The role of health literacy in medication use Techniques to improve counselling of patients especially those of LHL Other aids or programmes to improve adherence	● "Ask Me" ● Teach-back ● Simplify prescription and referral ● Demonstrate ● Improve adherence (Pill boxes, blister packaging, medication management services)	Yes (54 Medical residents Primary Care Center of Grady Memorial Hospital) (reference of LHL percentage of the clinics 80% of those over 60)		2 hours/ Free participation
6. Mackert et al, 2011	Social workers, nurses, nurse, practitioners, health educators, office staff, administrators and others	Face to face training	Lecture Discussion Role-playing exercises Videos of testimonials of LHL patients Handouts	**training session based on the progamme by Kripalani et al (2006) for medical residents** ● define health literacy and explain its importance, ● how to identify LHL ● discuss the role of health literacy in patient care. ● strategies for communicating more effectively with low health literate patients ● strategies of developing patient friendly material	Communication techniques ● Teach-back ● Use plain language ● Designing patients forms and handouts	(adapted training of Kripalani et al 2006)	Pre-post survey of 166 participants at regional conference	90min / Delivered as part of reginal conferences, costs N/A

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
7. Callahan et al, 2013	cardiology and rheumatology practice sites (physicians, nurses, pharmacists, nursing assistants, receptionists and business managers	Face to face introduction how to use the toolkit	(1) Written material (2) Videos (3) Handouts (4) Glossary (5) PDSA model	issues related to rheumatology (HLUPT-R) and cardiology (HLUPT-C) practices and all the thematics of HLUPT improving spoken communication, improving written communication, improving self-management and empowerment, and improving supportive systems.	**21 Tools of HLUPT (DeWalt et al, 2011)** **HLUPT-R** Added: rheumatology references ● Teach-back video (rheumatoid arthritis) ● Glossary ● Rheumatic disease medication aids and handouts, links and patient education material **HLUPT-C** Added: Cardiology specific references, ● Teach-back video (hypertension and heart failure examples) ● Glossary ● Hypertension disease medication aids and handouts, links and patient education material ● "Communicating Care with Other Physicians"	Yes (tested in 8 clinical practice sites cardiology and rheumatology)	- N/A	N/A/ reimbursment of the research sites for their participation
8. Agency for Healthcare Research and Quality, 2007 (updated September 2020)	pharmacies	Face to face training	● Lecture (Power point) ● Interactive delivery- role-playing exercise ● Break-out sessions ● Discussion Q&A ● Handouts -Notes ● Downloadable resources for pharmacies from AHRQ website	Strategies to Improve Communication Between Pharmacy Staff and Patients: A Training Program for Pharmacy Staff by Kripalani and Jacobson 2007 Agenda of training Overview and introduction Welcome and Introductions: 10-15 minutes Interactive Delivery of Slide Set: 1 hour Small Group Breakout Sessions: 15 minutes (Role Play Exercise Using Handouts) Question-and-Answer Session and Wrap-Up: 30 minutes	seven health literacy tools available for download (1) Pharmacy Health Literacy Assessment Tool & User's Guide. (2) Guide on How To Create a Pill Card. (3) Telephone Reminder Tool to Help Refill Medicines On Time. (4) Explicit and Standardized Prescription Medicine Instructions. (5) How to Conduct a Post discharge Follow-up Phone Call. (6) Health literacy tools to improve communication for providers of medication therapy management. (7 stages)	Tested by Kripalani et al, 2006	O'Neal et al, 2013 Shoemaker et al, 2013 (facilitators and barriers in the implementation of the AHRQ for pharmacies)	two-hour, low intensity workshop/ Free access to material

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
9. Green et al, 2014	Medical residents	Face to face training	• Groupwork • Lectures • Video encounters review • Practice to standardised patient	**groups of 3-5 residents**, **didactic training** • (HL overview, video, clear health communication skills) **practice (explain diagnosis of diabetes, counsel on lifestyle chanted, instruct on new medication and** • individualised feedback (videotaped encounters- review of this material for 2-3 week)	• American College of Physicians (ACP) Foundation Health Literacy video • Plain language • Teach-back • Encourage questions	Yes (31 PGY2 internal medicine residents)	N/A	2hours weekly for 3 weeks/didactic session 45 min/ N/A
10. Goto et al 2014	Public health nurses Fukushima City Health and Welfare Center.	Face to face training	(1) Ice breaking activity (2) Quiz (3) Lecture (4) Written exercise (5) Training evaluation (6) Homework	**Modified in Japanese context**: **Rudd's "Eliminating Barriers-Increasing Access Workshops** **1st session** • ice-breaking activities, • Lecture: general HL background, material assessment tools • Exercise: assigned written health material • Evaluation and homework **2nd session** • Review quiz • Lecture on readability • Exercise: revision of their own material • Evaluation and homework **Follow-up** • Review of one month application • Training evaluation	Added tools appropriate for Japanese language: Readability tool: • Obi-2, translated material of SAM in Japanese for assessment of written materials, • single item assessment of HL level, Sasaki's practical instructions, • Apter's numeracy levels and Woloshin's guidelines, • "Marker Method", improve graphics, develop leaflet	Yes (39 nursees)	Goto et al, 2015 (same training with 64 public health nurses)	2 sessions and follow up 2hours per sessions/ N/A (under the minister of health)

(*Continued*)

Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
11. Miller-Scott, 2014 (https://nsuworks.nova.edu/cgi/viewcontent.cgi?article=1001&context=hpd_ot_student_dissertations) dissertation	Occupational Therapist	Face to face training	Lecture (powerpoint) Discussion (Q&A) Evaluation (feedback form and self-evaluation Kirkpatric model)	Introductory concepts ● Theoretical foundation of HL (Terminology, Epidemiology, Evidence and outcomes, theories) ● Health Literacy assessments ● Health Literacy interventions ○ Verbal communication ○ Written communication ● Health Promotion (Patient activation, Patient Engagement, Ask Me 3) ● The Environment (Impact, Learning, Healthcare, Natural)	REALM TOFHLA HLSI NVS HLUPT Plain language Clear communication strategies Toolkit for Making Written Material effective (Cenrre of Medicare and Medicaid Services) SMOG Sam Frye Readability Factor Computer-based Readabilty Formula	Yes (20 licensed OT)		1 hour/ N/A (as part of dissertation research)
12. Fidyk et al, 2014	Clinical nurses	Face to face training	Didactic lecture Group interaction Role-play Video Discussion handouts	The course started with a video on HL and PS and continued with the identification of teachable moments during patient interactions, and the use of common everyday language. Didactic part of assessment strategies and techniques related to health literacy and teach back between group activities Scenarios of the role-playing: heart failure, diabetes, breast cancer, anxiety and polypharmacy Discussion at the end for the transition of care and gaps in patients' education	● a video entitled Health Literacy and Patient Safety: Help Patients Understand (American Medical Association, 2007) ● Teach back technique ● Assessment related to HL ● Clear communication	Pilot-tested to 15 clinical nurses		6 hours and 2 hours follow-up after 3 months period/ N/A (pilot educational sessions)

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
13. Coleman and Fromer, 2015	family medicine residency program clinic in a rural community	Face to face training	(1) Lecture (2) Video	**"Overview of HL lecture"**: definition of HL, prevalence LHL, impact on quality of care and health outcomes, understanding of the universal precautions approach", Video **Workshop** learning style preferences, communication and readability tools	• AHRQ best practices for spoken and written communications, self-management and empowerment and use of supportive systems Workshop • recognition and avoidance of • jargon, use of the "teach back" method and use of the Fry technique readability	Yes (45 healthcare professionals)		70′ didactic and 30′ experiential workshops/ N/A (mandatory training)
14. Pagels et al, 2015	Family Medicine (FM) residents at a county supported indigent care clinic	Face to face training	(1) Lectures (2) Videos (3) Role playing (4) 3 months follow-up	**didactic learning and an objective structured clinical exam (OSCE)**: 90min didactic (short lectures, a video, and role-playing for patient-centered communication, confirmation of understanding and providing reinforcement/objective structured clinical exam	OSCE): (1) administer and score the Newest Vital Sign. (2) use the AskMe 3; (3) employ the teach-back method; and (4) work with an interpreter	Yes (25 family Medical residents)		90min and 60min (exams) 3 months follow-up/ N/A
15. Beauchamp et al, 2017	8 organisations (allied health and nursing practitioners, program managers and team leaders) rural/metropolitan, small/large hospitals, community health centres or municipalities	Face to face training	**Groupwork-workshops** Focus groups Training videos Training Resources PDSA cycles **evaluation**	**Ophelia (OPtimising Health Literacy and Access) approach** **Phase 1**. Define aim and identify priority-needs assessment by collecting- 3 hours workshops with 6 and 24 participants comprising allied health and nursing practitioners, program managers and team leaders) – codesign approach to develop interventions **Phase 2**. Develop model presenting changes within rganization and following detailed implementation and evaluation plan (2-3 months Plan Do Study Act cycles) **Phase 3**. Implementation up to 6 months	N/A	Yes (9 sites: 228 clients and 22 volunteers, 42 staff- in 5 sites clients over 60)		Phase 2 : 2-3 months PDSA and Phase 3: 6months implementation and evaluation/ N/A

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
16. Finlay et al, 2018	Participants were staff at different levels (i.e. management and practitioners)	The training initially developed as Face to face training And an eLearning followed	Forum Short course- lectures Videos Factsheets home projects within participating organisations (PDSA) projects Elearning: presentations	(1) an introductory health literacy forum. (2) a 2-day health literacy short course with 6 modules: Module 1 (Introduction, definitions and ABS HL factsheet (including reference for age older people and HL))Module2. (Tools for the assessment and screening tools) Module3. Readability tools Module 3B. a guide to creating and evaluation patient material Module 4 good practices, Ask Me 3 Teach back method Module 5 Health Literate organisations Module 6. Challenges and solutions for organisation becoming HL (3) training in the use of specific health literacy tools; and (4) completion by participants of individual 'plan do study act' (PDSA) projects. Modules of the elearning: introduction, leadership, communication, navigation of physical and virtual environment, partnering with consumers	training in the use of specific TOFHLA, S-TOFHLA, REALM, REALM-R, NVS, BEKHA-HIV, SILS Plain Language Ask Me 3 Teach back technique- Tool 5 of AHRQ First Impressions Audit and Walking Interview (Rudd) SMOG Flesh-Kincaid Reading level Hemingway Readability Editor Suitability Assesment of Materials Online readability tests Prism Glossary AHRQ quick quide to HL	Yes (staff from 13 acute and community health services across the Gippsland region		2 days training. All phases lasted from May 2012 until February 2013/ N/A
17. Goto et al, 2018	Public health nurses (pilot-test of the CCI for breastfeeding)	Face to face training	Workshop (Lecture and discussion) Glossary index	Radiation lecture for public health nurses for the development of the Health Literacy toolkit	Centers for Disease Control and Prevention clear communication index (selection of the index and translation -back translation)	Yes (in a government project of Japan's Ministry of Environment)		3hours workshop/ N/A

(*Continued*)

Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
18. Kaper et al, 2018	HCP from Ireland, Italy and Netherlands working in hospitals and dialyze-centres, ambulatory community treatment centres, community networks, rehabilitation services, and home care	Face to face training	5 Workshops (lecture, discussion, practice) Videos Role-playing (visual recording)	W1. knowledge and awareness of HL (introduction, impact of LHL, readability, cues to identify LHL, role playing) / W2. Gathering and providing information to address functional HL/ W3. shared decision making to address interactive health literacy/ W4. enabling self-management to address critical HL/ W5. Changing behaviour to apply HL communication (enhancing positive attitudes, social norms, self-efficacy and motivation- summary and share experiences, peer supervision, action plan development, brief presentation of barriers and apply HL in practice)	n/a	Yes (30 health professionals)	Kaper et al, 2019 (significant increase in self-rated competencies of Health proessonals	2h per workshop/ N/A (convenience sample)
19. Allenbaugh et al, 2019	medicine physicians, internal medicine residents, and bedside nurses	Face to face training	(1) Lecture (Power-point) (2) Videos (3) role playing Scenarios	Presentation on topics: Didactic session ● Evidence-based principles form HL literature ● communication techniques ● 6 videos bedside rounds and discharges, ● 3 role-play scenarios	● plain language, ● teach back technique, ● 1 to 3 points of information, ● "what questions do you have"	Yes (37 attending medicine physicians, 76 internal medicine residents, and 85 bedside nurses)		1 TO 1.5 HOURS workshop/ N/A (during meeting and meals-hour conference)

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
20. Muscat et al, 2020	All allied health disciplines from a Local Health District in western Sydney	Face to face training	**didactic and experiential** teaching methods and behaviour change techniques Lectures, Videos Break-out sessions Video review	**Training**: Part 1: Introduction to HL, Prevalence of LHL, Impact of LHL, Introduction to the Precautions toolkit, summary Part 2: Tool 5, evidence about the effectiveness of communication, video, what to do if someone cannot teach back, practice, action plans developmental, summary Part 3. Tool 11, readability formulas, demonstration, understandability assessments, asking patients to evaluate written info, using numbers, overcoming barriers to assess, select and create easy to understand material, practice, action plans, summary Part 4. Overview of the train the trainers, develop and share implementation plans	Universal Precaution toolkit: Focus on **Tool 5** (Teach back) and **11** (assess, select and create easy to understand materials (didactic and experiential teaching methods- small group breakout sessions for communication skills) and video review (train the trainer model)	Yes (29 allied health professional)		2hours session/ N/A
21. Tavakoly Sany et al, 2020 (RCT)	Physicians healthcare clinics in the Mashhad, Iran hypertensive patients	Face to face training	Focus –Group Discussion Didactic presentation and open-ended questions **Workshops** ● Video ● Handouts ● Education materials ● Power-point Follow up evaluation	**1st session**: primary care and communication needs, **2nd session**: developing focused questions to solve problems, **3rd session**: identifying the targets for intention. **Workshop 1**: spoken communication, written communication **2nd workshop**: collaboration skills to improve self-care behavior and medication adherence, primary care support to develop physician counseling skills and patients self-efficacy (Teach back video, Power-point (Ask Me, Medcard, pill chart)	● Tips for communicating clearly (verbal and written) (Plain language, use of graphics, encourage questions, Release of medical information ● Lab-results letter ● Teach back ● Follow-up instruction form ● Medication adherence (Pill chart) ● Brown-bag medication Evaluation: HLAQ, CSQ adult primary care, self-efficacy scales	35 physicians and 240 hypertensive patients presenting to primary health care centers in Mashhad, Iran (mean age 55)		3 sessions of Focus –Group Discussion and 2 workshops 10 h per Session/ N/A

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
22. Van der Giessen et al, 2020	breast surgeons and specialized nurses	Blended training eLearning and face to face training	Lectures Role playing with actress Video recordings of patients	**knowledge module** (prevalence of LHL in Netherlands, understanding and appraise of information from professionals and relation of HL to SES and other patients' characteristics, communication skills with patients with migrant background, teach-back method, role -playing techniques, cultural sensitivity training and role playing) and group training in one participating hospital	Send email Communication skills- plain language, cultural difficulties??? Teach back method	Yes (65 health professionals from 17 hospitals)	Van der Giessen et al, 2020 (59 breast surgeons and specialised nurses from 16 Dutch hospitals -33 participants completed pre-post survey	module online- 20 minutes and group training 2 hours/ N/A (piolot test)
23. Health Educati-on England & National Health System Scot land	Wider public health workers health, social care and the charitable sector	eLearning for healthcare by NHS	Case studies Presentation Workshop lesson plan Strategic report Guide and slides	why health literacy is important and how to use some simple techniques	TeachBack chunk and check, using pictures and simple language to improve how they communicate and check understanding with others.	Email sent		30 min/Free access

(*Continued*)

Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
24. CDC training asyn-chron-ous Heatlh Literacy for Public Health Professi onals	Physicians, Registered Nurses, Nurse Practitioners, Dentists, Pharmacists, Health Educators, Health Communicators, Public Affairs Specialists, Administrators, Epidemiologists, Public health program managers.	eLearning	3 presentations x 23slides Scenarios Videos Quizzes Multiple choices Case studies Glossary, Resources The course uses a 508-compliant template, knowledge checks, scenario-based interactions, video clips, and a post-test to engage learners. Users review 5 stars (evaluation)	Introduction Lesson 1- What is Health Literacy, communication skills, CALD, EPIDEMIOLOGY) Lesson2-Why does Health Literacy Matter (public health) Lesson 3- Applying Health Literacy to Practice (barriers and disseminate the idea)	N/A		Reported in the literature review by Coleman,2010	1 hour/ Free access
25. CDC training Effective Commu-nication for Healthc-are teams: addres-sing HL, limited English profi-ciency and cul-tural differ ence	Healthcare Professionals	eLearning	Slides, Videos Resources Quizzes Evaluation	Introduction 3 Modules: Health Literacy Cultural differences Limited English Proficiency	N/A			Introduction 15′ Module 1 30′ Module 2 45′ Module 3 30′ / Free access

(*Continued*)

Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
26. IMPACCT ERASM-US PROJECT -TRAINI-NG 2017-2020	Health Care professionals working in the private and public sector-focus on older people HL	Blended training	Articles Quizzes Discussions Videos Case studies	FACE TO FACE (1) Strengthening support by communities, families or peers (2) Empowering people with low health literacy (3) Promoting person-centered interaction (4) Strengthening leadership and collaboration capacities of HCPs (5) Reducing communication barriers in healthcare organisations Introductory MOOC 1st week --- ● Getting to grips with health literacy problem ● Accessing, understanding and appraising health information ● What is health literacy ● The health professional's perspective How big is the HLproblem in Europe and changing patterns / 2nd week ● Patient abilities and demands ● Introducing the Universal Precautions approach ● Health literacy and person-centred approach ● HL and empowerment ● Identifying people with LHL 3rd week ● Barriers in communication between HCP and patient ● the value of question in meeting patients' health literacy needs ● Plain language ● Encouraging people to ask questions ● understanding in communication ● The teach-back method	AHRQ Universal Precaution approach Encourage questions Simplifying medical jargon Teach-back method Chunk and check			3 weeks asynchronous learning (3hous weekly study)/ 54euros

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Table 2. (Continued).

Author	Target population	Training Type	Training Tools	Themes and seminar structure	HL strategies and tools to enhance LHL	Pilot-tested/ Evaluated	Published data on the implementation	Duration/ Cost
27. Szwajcer et al, 2014	Medical residents St. Boniface Hospital, and the Northern Medical Centre	Face to face training	Lecture Hands-on workshop (scenarios)	communication and patient education skills raise awareness, identify and use HL communication strategies, recognize the importance of effective information management to deliver education Session 1; health literacy:why it matters and what you can do about it (definition, screening tools, health outcomes of LHL, readability tools, communitcation techniques and strategies) Session 2: "Health literacy: finding and using patient information and resources (recognising sources of patient information, print and online resources for patients, case scenario finding patient materials online, use of social media, managing newly found information, create group networks to share resources	AHRQ and Wess' manual for American Medical Association REALM-SF NVS SMOG Teach-back techniques Health literacy Assessment audit tool Communication techniques Manitoba Patient Safety Safe to ask compaign AHRQ' questions are the answers	Yes (47 medical residents)		3 hours (2 sessions)/ N/A (pilot programme)

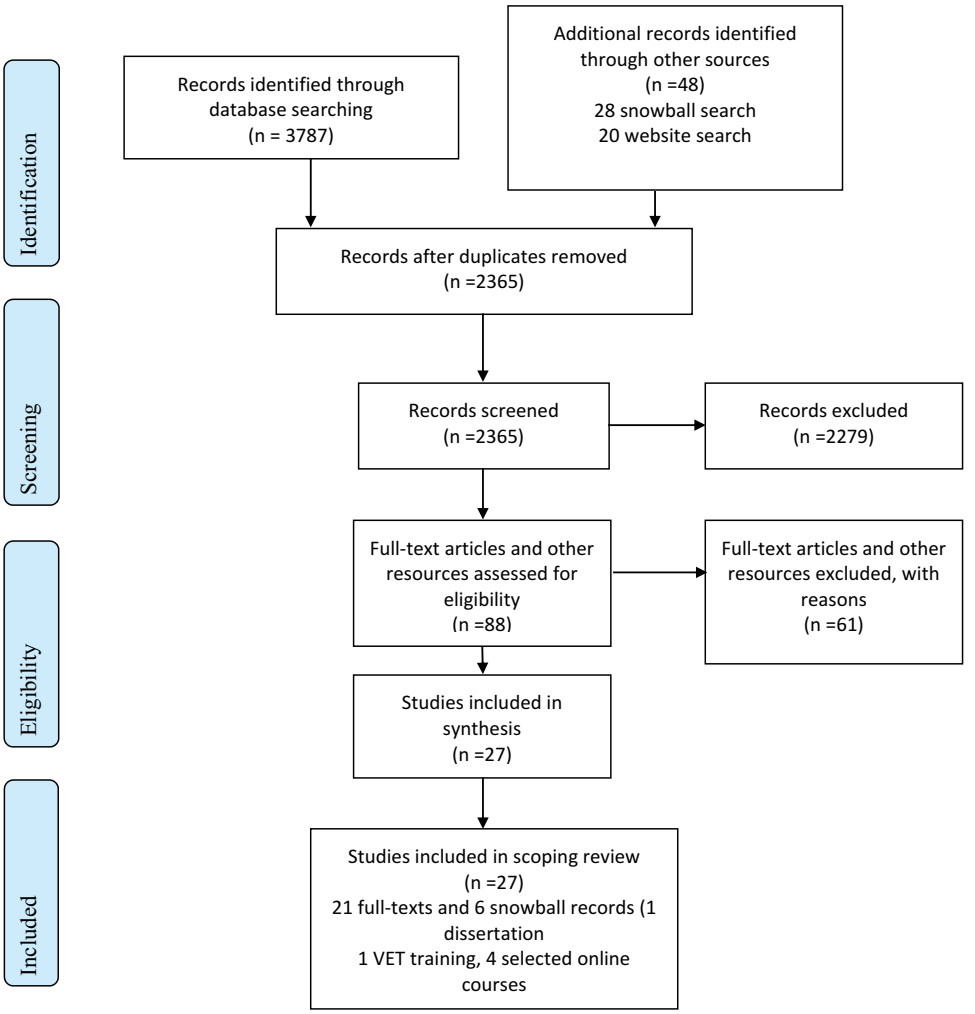

Figure 1. Flow chart for study selection (PRISMA-ScR).

Continuing Education (organisation), (2006). Canada, Europe, Japan, Australia, and Iran were the origin of the remaining studies and records (Beauchamp et al., 2017; Finlay et al., 2018; Goto et al., 2014, Health Education England, & NHS Education for Scotland, 2018; Muscat et al., 2020; Tavakoly Sany et al., 2020; van der Giessen et al., 2021). Recently, we found multi-centered efforts in Europe as part of continuing education courses. Two continuing education courses were developed in collaboration with more than one country in Europe (IMPACCT Erasmus+, 2017; Kaper et al., 2018).

In the past decade there was an increase in the development of HL continuing education courses for healthcare professionals (89%, 24/27). For the period 2000–2006, no continuing education courses met the eligibility criteria. The eLearning courses and online toolkits, even if they were created in some cases over a decade are still available online today (CDC continuing education courses, NHS Health Education England and Scotland, School of public health, AHRQ, IMPACCT, Gippsland Primary Care Project).

Most of the courses (59%, 16/27) did not provide information on registration costs and were organized as part of pilot or research projects. In one case (IMPACCT), the platform provided the price to access the full elements of the course, and, in another case, authors reported that they reimbursed the pilot sites for their participation (Callahan et al., 2013).

Training modalities

Face-to-face was the preferred delivery method of training, as it was used in 74% (20/27) of the cases. The blended option was used in two cases as part of a continuing education course developed for breast surgeons and specialist nurses combining face-to-face training and eLearning (IMPACCT Erasmus+, 2017; van der Giessen et al., 2021). In another case, the Gippsland Primary Care Project, an eLearning training enhancing Organizational Health Literacy, was developed to support the implemented face-to-face training. Organizations could decide to attend the face to face, the eLearning or a blended option according to their needs (Finlay et al., 2018).

Most frequently, teaching combined didactic (video, PowerPoint presentations, downloadable resources, handouts – factsheets, and glossary) and experiential modalities (practical exercises, breakout sessions, objective standard clinical exams, role playing, forum, scenarios, quizzes, preworkshop assignments). The practice with a standardized patient (a trained person to act as a patient) in medical residents continuing education courses, group work, focus groups, and break-out sessions were utilized in seven (35%, 7/20) training workshops (Beauchamp et al., 2017; Green et al., 2014; Kripalani et al., 2006, 2011; Kripalani & Jacobson, 2007; Muscat et al., 2020; Tavakoly Sany et al., 2020). Role-playing methods and video reviews were also important tools for practice in nine HL continuing education courses (45%, 9/20) (Allenbaugh et al., 2019; Fidyk et al., 2014; Green et al., 2014; Kaper et al., 2018; Kripalani et al., 2011; Kripalani & Jacobson, 2007; Mackert et al., 2011; Muscat et al., 2020; Pagels et al., 2015; van der Giessen et al., 2021). In one study, a forum was organized to initiate the process and raise awareness for the HL concept before the short course of a two-day duration (Finlay et al., 2018). The mean duration of the continuing education courses was 2.36 hours (minimum one hour and maximum four hours). The blended training course "IMPACCT" had the longest duration of 28 hours (IMPACCT Erasmus+, 2017). The continuing education courses extended over a period of 6–8 months, involving multiple phases if they followed a Plan-Do-Study-Act methodology (Beauchamp et al., 2017; DeWalt et al., 2011; Finlay et al., 2018).

HL contents and tools

From all the selected studies and continuing education courses, seven categories emerged following research team consensus: (1) background of HL including definitions, theoretical framework, different literacies, digital variable (eHL); (2) the impact of limited HL on healthcare user (how to identify, the impact, specific needs, empathy, techniques to improve counseling; (3) how to improve oral communication skills; (4) how to improve written communication skills; (5) The impact of limited HL on the healthcare systems (public health, primary care and disease management); (6) HL and medicine adherence; (7) How to promote HL in organizations (Table 3).

Table 3. The content of the HL continuing education courses.

Topics	Subtopics
Background of HL (definition, theoretical framework, literacies, digital variable of HL, assessment tools)	1. Definition of HL Accessing, understanding and appraising health information -actively seeking info, discussion on appraising HI, search online for HI, video and discussion on applying HI) (Allenbaugh et al., (2019); Centre of Disease Control, (2018); C. A. Coleman & Fromer, (2015); Finlay et al., (2018); Goto et al., (2014); Green et al., (2014); Health Educationa England, & NHS Education for Scotland, 2018; IMPACCT Erasmus+, (2017); Kaper et al., (2018); Kripalani et al., (2006); Kripalani & Jacobson, (2007); Mackert et al., (2011); Muscat et al., (2020); Szwajcer et al., (2014); University at Albany Centre for Public Health Continuing Education (organisation), (2006); van der Giessen et al., (2020)
	2. Theoretical foundation of HL (Terminology, Epidemiology, Evidence and outcomes, theories and factors influencing) (Allenbaugh et al., 2019; Center of Disease Control, 2019; Centre of Disease Control, 2018;Coleman & Fromer, 2015; Finlay et al., 2018; Health Educationa England & NHS Education for Scotland, 2018; IMPACCT Erasmus+, 2017; Kaper et al., 2018; Miller-Scott & Lauer, 2014; Muscat et al., 2020; Rudd, 2010a; Szwajcer et al., 2014; *Third European Quality of Life Survey – Quality of Life in Europe : Trends*, 2014 J. A. M. van der Giessen et al., 2020)
	3. domains of HL (University at Albany Centre for Public Health Continuing Education, 2006)
	4. Tools for assessment and screening (Center of Disease Control, 2019; Finlay et al., 2018; Miller-Scott & Lauer, 2014; Pagels et al., 2015; Szwajcer et al., 2014)
	5. e-Health and eHealth literacy (IMPACCT Erasmus+, 2017)
The impact of LHL on healthcare users	6. Coping strategies of the LHL (University at Albany Centre for Public Health Continuing Education 2006)
	7. Recognizing LHL (Allenbaugh et al., 2019; Centre of Disease Control, 2018; IMPACCT Erasmus+, 2017; Kaper et al., 2018; Kripalani et al., 2006; Mackert et al., 2011; University at Albany Centre for Public Health Continuing Education, 2006)
	8. Consequences of LHL (e.g. impact of delaying seeking medical attention, on medication use, on quality of care) (Centre of Disease Control, 2018; C. A. Coleman & Fromer, 2015; Health Educationa England & NHS Education for Scotland, 2018; Kaper et al., 2018; Kripalani & Jacobson, 2007; Muscat et al., 2020; Szwajcer et al., 2014; University at Albany Centre for Public Health Continuing Education, 2006)
	9. How does it feel to not understand information – stigma of LHL (Kripalani & Jacobson, 2007; University at Albany Centre for Public Health Continuing Education, 2006)
	10. Patient abilities and demands (IMPACCT Erasmus+, 2017)

(*Continued*)

Table 3. (Continued).

Topics	Subtopics
How to improve HCP Oral Communication skills	11. Shared decision-making to address interactive HL (IMPACCT Erasmus+, 2017; Kaper et al., 2018)
	12. Improving and enabling self-management to address critical HL (Callahan et al., 2013; Coleman & Fromer, 2015; D. A. DeWalt et al., 2011; Kaper et al., 2018)
	13. Techniques to improve counseling of patients and to empower especially those of LHL (medication counseling) (Green et al., 2014; IMPACCT Erasmus+, 2017; Kaper et al., 2018; Kripalani et al., 2011; Tavakoly Sany et al., 2020; University at Albany Centre for Public Health Continuing Education, 2006)
	14. Barriers of good communication (Allenbaugh et al., 2019; IMPACCT Erasmus+, 2017; University at Albany Centre for Public Health Continuing Education, 2006)
	15. Improving spoken communication (gathering and providing information to address functional HL) (Allenbaugh et al., 2019; Callahan et al., 2013; Center of Disease Control, 2019; Centre of Disease Control, 2018; Coleman & Fromer, 2015; D. A. DeWalt et al., 2011; Finlay et al., 2018; Green et al., 2014; Health Educationa England & NHS Education for Scotland, 2018; Kaper et al., 2018; Kripalani et al., 2006; Kripalani & Jacobson, 2007; Mackert et al., 2011; Miller-Scott & Lauer, 2014; Muscat et al., 2016; Pagels et al., 2015; Szwajcer et al., 2014; Tavakoly Sany et al., 2020)
	16. Changing behavior to apply HL communication (enhancing positive attitudes, social norms, self-efficacy and motivation- summary and share experiences, peer supervision, action plan development, brief presentation of barriers and apply HL in practice) (Kaper et al., 2018)
	17. Communication skills with patients with migrant background (CALD)- cultural sensitivity training and cultural differences (language proficiency) (Center of Disease Control, 2019; Centre of Disease Control, 2018; DeWalt et al., 2011; van der Giessen et al., 2020)
	18. Empowerment, and improving supportive systems (Callahan et al., 2013; Coleman & Fromer, 2015; DeWalt et al., 2011)
	19. Focusing on primary care and communication needs (Tavakoly Sany et al., 2020)
	20. Learning style preferences (Coleman & Fromer, 2015)
	21. Developing focused questions to solve problems, the value of question in meeting patients' HL needs (IMPACCT Erasmus+, 2017; Tavakoly Sany et al., 2020)
How to improve written communication	22. Improving written communication (illustrate, provide resources) (Callahan et al., 2013; Centre of Disease Control, 2018; Coleman & Fromer, 2015; DeWalt et al., 2011; Finlay et al., 2018; Goto et al., 2014; Kaper et al., 2018; Kripalani et al., 2006; Kripalani & Jacobson, 2007; Mackert et al., 2011; Miller-Scott & Lauer, 2014; Muscat et al., 2020; Rudd, 2010a; Szwajcer et al., 2014; Tavakoly Sany et al., 2020)
	23. Scoring of the readability tools (Center of Disease Control, 2019; Coleman & Fromer, 2015; Goto et al., 2014; Miller-Scott & Lauer, 2014; Rudd, 2010a; Szwajcer et al., 2014)
	24. Understandability of healthcare forms (Muscat et al., 2020)

(*Continued*)

Table 3. (Continued).

Topics	Subtopics
The impact of LHL on Healthcare systems (public health, health promotion and disease management)	25. Focusing on primary care (Kripalani et al., 2006)
	26. Discuss the role of HL in patient care (Mackert et al., 2011; University at Albany Center for Public Health Continuing Education, 2006)
	27. Relation to public health (Centre of Disease Control, 2018; University at Albany Center for Public Health Continuing Education, 2006)
	28. Health promotion (Miller-Scott & Lauer, 2014)
	29. HL and person- centered approach (Centre of Disease Control, 2018; IMPACCT Erasmus+, 2017)
HL and medicine adherence	30. Definition of adherence and persistence, forms of non-adherence (skills contributing to adherence) (Kripalani et al., 2011; Tavakoly Sany et al., 2020)
	31. Health effects of non-adherence (Kripalani et al., 2011)
	32. Factors contributing to non-adherence (self-care behavior and patients' self-efficacy (Centre of Disease Control, 2018; IMPACCT Erasmus+, 2017)
	33. The role of HL in medication use (Centre of Disease Control, 2018; IMPACCT Erasmus+, 2017)
	34. How to improve adherence (DeWalt et al., 2011; Kripalani et al., 2011)
How to promote HL in Organizations (Organizational HL)	35. The health professional's perspective How big is the HL problem in Europe and changing patterns (IMPACCT Erasmus+, 2017)
	36. The environment (impact, learning, healthcare, natural) (Miller-Scott & Lauer, 2014)
	37. Challenges and solutions for an organization becoming HL (Beauchamp et al., 2017; Centre of Disease Control, 2018; Finlay et al., 2018; IMPACCT Erasmus+, 2017)
	38. Leadership skills and collaboration skills of HCPs (IMPACCT Erasmus+, 2017)
	39. Develop and share implementation plans (Beauchamp et al., 2017; Centre of Disease Control, 2018; Finlay et al., 2018; Muscat et al., 2020)
	40. Identifying the targets for intention, HL stakeholders, the role of media (Centre of Disease Control, 2018; Finlay et al., 2018; Tavakoly Sany et al., 2020)

Presentation of the categories of people with limited HL and how to enhance HL and understand the needs of limited HL was part of the workshops and continuing education courses. Although older people's HL needs were not specifically addressed, nine studies (33%, 9/27) referred to them. In the open online course by the University at Albany, there was available didactic content for older people with low HL skills (University at Albany Center for Public Health Continuing Education, 2006). Kripalani et al. (2006, 2011) also pilot-tested the training to medical residents working mainly with people over 60-years-old. The adaptation of the Health Literacy Universal Precautions Toolkit (HLUPT) was implemented in healthcare professionals working in cardiology and rheumatology clinics with older adults. That was also the case in the study by Beauchamp et al. (Beauchamp et al., 2017; Callahan et al., 2013). In the RCT study by Tavakoly Sany, the hypertensive patients' mean age was 55 years old, and the focus of the IMPACCT project was on older people (IMPACCT Erasmus+, 2017; Tavakoly Sany et al., 2020). In CDC training for Health literacy for Public Health Professionals and the training of the agency for healthcare and research for pharmacies, there was reference to older people in the didactic section (Centre of Disease Control, 2018; Kripalani & Jacobson, 2007). Several continuing education courses included resources and contents focusing on medication adherence which is an important topic for older people (Callahan et al., 2013; Chesser et al., 2016; Coleman & Fromer, 2015; DeWalt et al., 2011; IMPACCT Erasmus+, 2017; Miller-Scott & Lauer, 2014; Tavakoly Sany et al., 2020).

The HLUPT and the AHRQ pharmacies toolkit were the most used toolkits in different settings and for various diseases (Callahan et al., 2013; Coleman & Fromer, 2015; DeWalt et al., 2011; IMPACCT Erasmus+, 2017; Kripalani & Jacobson, 2007; Miller-Scott & Lauer, 2014). The HLUPT is available in two versions: the first version was developed by DeWalt et al. (2010) and included 20 tools. The second version was updated by Brega et al. (2015) included one extra tool "Make referrals easy," updated links, titles, and annexes. HLUPT was based on the work by Rudd and Anderson's assessment of health centers (Rudd & Andersen, 2006) and was adapted by Callahan et al. (2013) for rheumatology and cardiology, including an additional tool, "Communicating Care with Other Physicians," disease-specific teach-back video, glossary and disease-specific medication aids, handouts and links to websites and materials.

The most common tools used were: "the teach-back method", "Encourage questions and Ask Me 3," and "tips for clear communication" with focus on verbal and written communication (Table 2). The Guide of Four Habits Model of Kaiser Permanente (communication program for medical interviews) by Frankel and Stein (2001) was included as a communication guide in training by Kripalani et al. (2006). The Four Habits Model includes four categories with communication tasks (skills, techniques, and outcomes): (1) "invest in the Beginning;" (2) "Elicit the Patient's Perspective;" (3) "Demonstrate Empathy;" and (4) "Invest in the End." Other toolkits presented as part of training methodologies were the Weiss' manual of the American Medical Association «Removing barriers to better, safer care: Manual for clinicians (Weiss et al., 2007), AHRQ's Questions are the answers, Manitoba Patient Safety Safe to Ask Campaign, Health Literacy Assessment audit tool, and First Impression Audit and Walking interview (Finlay et al., 2018; Kripalani et al., 2006; Rudd, 2010b; Szwajcer et al., 2014). Manitoba Patient Safety Safe to Ask Campaign was based on the Ask Me 3 initiative and was aimed at patient's engagement by providing helpful tools, resources (S.A.F.E toolkit) for healthcare users.

Table 4. Health literacy and readability assessment tools.

Health Literacy assessment and screening	Single-item assessment of Health Literacy level, Sasaki's practical instructions, (Finlay et al., 2018; Goto et al., 2014)
	REALM (Finlay et al., 2018; Miller-Scott & Lauer, 2014)
	REALM-R (Finlay et al., 2018)
	REALM-SF (Szwajcer et al., 2014)
	TOFHLA (Finlay et al., 2018; Miller-Scott & Lauer, 2014)
	S-TOFHLA (Finlay et al., 2018)
	HLSI (Miller-Scott & Lauer, 2014)
	BEKHA-HIV (Finlay et al., 2018)
	NVS (Finlay et al., 2018; Miller-Scott & Lauer, 2014; Pagels et al., 2015)
	Health Literacy Questionnaire (Beauchamp et al., 2017)
	Health Literacy Assessment audit tool (Szwajcer et al., 2014)
Assessment of readability and numeracy	Obi-2, translated material of SAM[i] in Japanese for assessment of written materials (Rudd, 2010a)
	Apter's numeracy levels and Woloshin's guidelines (Rudd, 2010a)
	SMOG (readability tool) (Finlay et al., 2018; Miller-Scott & Lauer, 2014; Rudd, 2010a)
	Suitability Assessment of Materials (readability tool) (Finlay et al., 2018; Miller-Scott & Lauer, 2014; Rudd, 2010a)
	Peter Mosenthal and Irwin Kirsch readability formula (PMOSE-IKIRSCH readability tool) (Rudd, 2010a)
	Flesh-Kincaid Reading level (Finlay et al., 2018)
	PRISM readability toolkit (Finlay et al., 2018)
	Marker Method (Rudd, 2010a)
	Hemingway Readability Editions (Finlay et al., 2018)
	NUMBERS summation (readability tool) (Rudd, 2010a)
	Frye Readability Factor (Coleman & Fromer, 2015; Miller-Scott & Lauer, 2014)
	Computer-based Readabilty Formula (Miller-Scott & Lauer, 2014)
	Centers for Disease Control and Prevention clear communication index (Goto et al., 2018)
	the Patient Education Material Assessment Tool (PEMAT) (Brega et al., 2015)

Note. REALM=Rapid Estimate of Adult Learning in Medicine, REALM-R= Rapid Estimate of Adult Learning in Medicine -Revised, REALM-SF Rapid Estimate of Adult Learning in Medicine-Short Form, TOFHLA= Test of Functional Health Literacy in adults, TOFHLA-SF= short form Test of Functional Health Literacy in adults, HLSI=Health Literacy Skills Instrument, BEKHA-HIV= Brief Estimate of Health Knowledge and Action-HIV, NVS= Newest Vital Sign, SAM=Suitability Assessment of Materials, SMOG= Simple Measure of Gobbledygook, PRISM=Program for Readability In Science & Medicine.

HL assessment and screening tools

Assessment tools for Health literacy level, readability, and numeracy were part of the didactic part for a small number of studies. The most presented tool for measuring the HL level was the Newest Vital Sign (NVS) (Finlay et al., 2018; Miller-Scott & Lauer, 2014; Pagels et al., 2015) (Table 4).

Pilot test

From the selected continuing education courses, 21 out of 27 studies (78%) tested their training methodology (Allenbaugh et al., 2019; Beauchamp et al., 2017; Callahan et al., 2013; Coleman & Fromer, 2015; DeWalt et al., 2011; Fidyk et al., 2014; Finlay et al., 2018; Goto et al., 2014, 2018; Green et al., 2014; IMPACCT Erasmus+, 2017; Kaper et al., 2018; Kripalani et al., 2006, 2011; Mackert et al., 2011; Miller-Scott & Lauer, 2014; Muscat et al., 2020; Pagels

et al., 2015; Szwajcer et al., 2014; Tavakoly Sany et al., 2020; van der Giessen et al., 2020). Most of the pilot studies followed the pre-post study design, and three other studies conducted a follow-up session (Fidyk et al., 2014; Goto et al., 2014; Kripalani et al., 2011). Most of the assessment items were developed by the authors using a multiple-choice or Likert-type scale. The mixed-method evaluation was a method of choice for five studies with both self-reported tools, focus groups, interviews and observation or open-ended questions (Beauchamp et al., 2017; Callahan et al., 2013; Fidyk et al., 2014; Finlay et al., 2018; Szwajcer et al., 2014).

The outcome measures assessed the training contents, process, and learning outcomes.

The adequacy, appropriacy, acceptance, and usefulness of the teaching materials and exercises were assessed (Fidyk et al., 2014; Goto et al., 2014; Muscat et al., 2020; Szwajcer et al., 2014; van der Giessen et al., 2020). In terms of the training process, a number of topics were assessed such as the duration of the training course (Fidyk et al., 2014; Goto et al., 2014; Muscat et al., 2020), trainee's facilitation during the course (Goto et al., 2014), the dissemination of the training (Muscat et al., 2020), the trainers' appropriacy (Fidyk et al., 2014), and the quality of the audiovisual material (Fidyk et al., 2014).

The previous HL knowledge, awareness, and skills to deal with patients with limited HL were the most frequently assessed learning outcomes (Allenbaugh et al., 2019; Beauchamp et al., 2017; Coleman & Fromer, 2015; Finlay et al., 2018; Goto et al., 2014; Green et al., 2014; Kaper et al., 2018; Mackert et al., 2011; Muscat et al., 2020; Szwajcer et al., 2014; van der Giessen et al., 2020).

Attitudes and behaviors toward HL (Allenbaugh et al., 2019; Coleman & Fromer, 2015; Fidyk et al., 2014; Green et al., 2014), the intention to use communication strategies (Allenbaugh et al., 2019; Coleman & Fromer, 2015; Mackert et al., 2011; Muscat et al., 2020; Tavakoly Sany et al., 2020), and trainee's confidence to communicate and perform HL-related tasks (Beauchamp et al., 2017; Muscat et al., 2020; Szwajcer et al., 2014; van der Giessen et al., 2020) were also evaluated. Less frequently, the evaluation of the knowledge and skills to revise written material (Goto et al., 2014), the understanding of the processes for an organization to become HL (Finlay et al., 2018), patients' self-efficacy (Tavakoly Sany et al., 2020), self-assessment of patients' educational skills (Fidyk et al., 2014), and educational strategies used and barriers or benefits of providing education (Fidyk et al., 2014) were assessed. The Kirkpatrick evaluation model was applied in two studies, including the four levels of the reaction, learning, behavior and results evaluation process (Miller-Scott & Lauer, 2014; Muscat et al., 2020). In a randomized controlled trial, the measures included HL Questions, Chew's screening questions, adult primary care questionnaire (medication adherence), chronic disease self-efficacy questionnaire (patient self-efficacy) (Tavakoly Sany et al., 2020). In a study targeting organizational HL, the HL Questionnaire was used to evaluate clients (Beauchamp et al., 2017).

In 17 out of the 27 studies (63%), the training implementation provided positive outcomes mainly about the knowledge and the quality of the training (Allenbaugh et al., 2019; Beauchamp et al., 2017; Callahan et al., 2013; Coleman & Fromer, 2015; DeWalt et al., 2011; Finlay et al., 2018; Goto et al., 2014; Green et al., 2014; Kaper et al., 2018; Kripalani et al., 2006, 2011; Mackert et al., 2011; Miller-Scott & Lauer, 2014; Muscat et al., 2020; Pagels et al., 2015; Szwajcer et al., 2014; Tavakoly Sany et al., 2020).

Effectiveness of the continuing education courses

The HLUPT was implemented in clinical practices, including healthcare professionals working with patients over 65 years old and rheumatology practice (Hirsh et al., 2020; Mabachi et al., 2016; Weiss et al., 2016). In the study of Mabachi et al., 12 practices used the toolkit and provided feedback for better usability. Suggestions for better use included the combination of the toolkit with other initiatives and the decrease of the material density, recommending flexibility (Mabachi et al., 2016). The Tool "Brown Bag Medication Review" was also implemented for six months in two practices, one urban and one rural, providing encouraging results such as increase of the number of people that brought their medicines in their doctor (Weiss et al., 2016). Tool 11 of HLUPT "Design Easy-to-Read Material" was implemented in four practices, with the three of them adopting the guidelines for creating easy to read material (Brega et al., 2016). In another study, the HLUPT-R was implemented to 46 physicians with positive results, improving medication adherence and highlighting the importance of the teach-back tool (Hirsh et al., 2020).

"Strategies to Improve Communication Between Pharmacy Staff and Patients: A Training Program for Pharmacy Staff Curriculum Guide" was implemented in eight pharmacies aiming to identify the facilitators and barriers of the toolkit implementation (Shoemaker et al., 2013). According to Shoemaker et al., lack of support, time and perception of the toolkit complexity were significant barriers. On the other hand, motivation, qualified and college-affiliated staff, support and the flexibility of the toolkit were considered facilitators (Shoemaker et al., 2013). The training implemented by Kripalani et al. (2006) was adapted by Mackert et al. in a sample of 166 healthcare professionals providing positive outcomes about the knowledge and intention to use clear communication techniques (Mackert et al., 2011). After the pilot testing, the continuing education courses were further implemented in larger samples in three studies (Goto et al., 2015; Kaper et al., 2019; van der Giessen et al., 2021). The training workshop for public health nurses based on Rudd's "Eliminating Barriers -increasing access workshop," initially adapted by Goto et al., was evaluated at multiple sites, in 64 nurses. This study provided positive results for the appropriacy and usability of the workshop and confidence in assessing written material (Goto et al., 2014, 2015). Similarly, Kaper et al. implemented the training consisting of five workshops to 106 healthcare professionals with a significant increase of the self-rated HL competencies (Kaper et al., 2019). The effectiveness of the blended training "Erfo4All" was further tested in 16 Dutch Hospitals to 59 breast surgeons and specialized nurses, providing positive results (i.e., increase in awareness and self-efficacy in recognizing people with limited HL) (van der Giessen et al., 2021).

Discussion and conclusions

Discussion

This scoping review aimed to identify the HL continuing education courses and tools for healthcare professionals supporting people with limited HL level. Pilot-tested continuing education courses for healthcare professionals focusing directly or indirectly on HL were widely available from research projects, public and private health, and vocational training organizations. The HLUPT was shown to be a widely used toolkit, which has been adapted to fit several training needs. The teach-back method, the clear communication tips (HLUPT

tool 4, "slow down," use of plain language, use of resources and illustrations, and chunking), encouraging questions were the most frequently used tools (Coleman, 2010). The background of HL, the impact and outcomes on the low HL patients, the verbal and written communication were the most frequently topics included in the courses. Experiential methods, such as role-playing with actress or attendees, and practice with a patient were the preferred teaching method for healthcare professionals and medical residents in ten studies (Allenbaugh et al., 2019; Fidyk et al., 2014; Green et al., 2014; Kaper et al., 2018; Kripalani et al., 2006, 2011; Kripalani & Jacobson, 2007; Mackert et al., 2011; Pagels et al., 2015; Van der Giessen et al., 2020). Assessment tools of the HL and readability were also part of the continuing education courses. Positive evaluation of the continuing education courses addressing the healthcare professionals was reported in this review, similar to that of the higher education curricula for the healthcare students by Saunders et al. (2019). The results of this review are in accordance with the map of clear communication techniques developed by Coleman et al (Coleman et al., 2017). According to Coleman et al study, the highly rated HL practices included the simplification of medical jargon, use of teach back and show me technique, patient-centered approach and active listening, universal precautions approach, professional medical interpreter, AskMe3, use of chunk information and supporting with written material (Coleman et al., 2017).

There is still a lack of courses focusing on the training of healthcare professionals working with older people in the community. Most of the courses identified in the present review were provided as part of pilot research protocol. The HL needs of older people were discussed in nine papers as part of teaching material or objectives. In nearly all continuing education courses, there was content on the outcomes and impact of limited HL on healthcare users or discussion about the red flags (warning signs) of limited HL behaviors, acknowledging age as an essential risk factor of limited HL. Centers for Disease Control and Prevention, (2009) an expert panel report focusing on how to enhance HL in older adults, which was also mentioned the Healthy People 2010 strategy objectives (Centers for Disease Control and Prevention, 2009). This initiative is still ongoing, and its objectives have been updated for 2030, including improving older people's health and well-being. (Healthy People 2030, n.d.). The question that remains unanswered concerns how appropriate the HL continuing education courses and tools are for supporting the healthcare professionals working with older people. The cognitive abilities of older people have been associated with the HL level, with a decrease in cognitive functioning being related to limited HL (Geboers et al., 2018). Nurses working with older people reported several barriers including physical and cognitive factors, such as short attention span, memory problems, hearing difficulties, poor eyesight, and the low educational level of both the patient and the caregiver (Hirsh et al., 2020).

Training tools for healthcare professionals addressing the empowerment of older people should become an essential part of the HL continuing education courses. Proposed topics for an HL toolkit targeting healthcare professionals working with older adults could include the seven content categories as revealed in our review which are in accordance with the competence framework of Coleman (Coleman et al., 2013; Coleman & Fromer, 2015) (Table 5).

Experiential simulation training and techniques such as simplifying the message, providing adequate time for the older person to receive the information, repetition of the information, better understanding of the abstract concepts, increasing motivation for

Table 5. Proposed topics for health literacy continuing education courses for the healthcare professionals.

Proposed topics
Topic 1. Background of HL including definitions, history, theoretical framework, types and modes (e.g., eHL)
Topic 2. The impact of limited HL on healthcare user/older adult (how to identify, the impact, specific needs, empathy (person-centered approach), techniques to improve counselling)
Topic 3. How to improve oral communication skills with older adults
Topic 4. How to improve written communication skills with older adults
Topic 5. The impact of limited HL on the healthcare system (public health, primary care and disease management)
Topic 6. HL and medicine adherence
Topic.7 How to promote HL in Organizations (Organizational HL)

learning for the older person and employing age-appropriate strategies for teaching have been found appropriate for teaching older people (Johnson et al., 2018; Speros, 2009) and are proposed for use in training courses addressing healthcare professionals working with older people. Communication techniques such as the "teach-back" method should be used carefully to avoid stigma (Liu et al., 2018). Finally, a person-centered approach, being considered as the most appropriate for the health education and communication with older adults (Storlie, 2015), should pervade each aspect of the training courses. Basic elements of this approach included respect, value, choice, dignity, self-determination and purposeful living as part of a rapport (deep listening, mindfulness) between the healthcare professional and the older adults (Kogan et al., 2016; Storlie, 2015). Being heard, respected, and appreciated is what everyone wants.

Strengths and weaknesses

The scoping review was considered the appropriate type of review since continuing education courses were developed and implemented by many different organizations or funded projects, and not all studies were piloted and published in peer-reviewed journals. On the other hand, scoping reviews entail limitations about the studies' quality, methodological variety, comparisons, and mapping difficulties. Even though the authors contacted the researchers and trainers of the continuing education courses in the case of limited information, it was not feasible to gather the information needed for the mapping in some cases. Regarding the Saunders et al. review, the search words did not specialize in specific professions, and this is a possible limitation. Another limitation concerns the gray literature search, as the cache in the web browser settings was not cleared to optimize the Google search.

Conclusions

We identified continuing education courses on HL and tools for healthcare professionals to enhance the limited HL of the healthcare users. Most of the continuing education courses pilot-tested their appropriacy and quality of their contents, or in the case of the eLearning courses, the users directly evaluated the content. During the COVID-19 pandemic, the need

for tailored-made training of specific groups with limited HL, such as people over 60, was highlighted by healthcare professionals worldwide.

Professionals, researchers, and organizations' joining efforts to enhance older people's skills seems to be a priority. This review identified the most frequently used training tools and methods, setting the basis for developing and testing tailored-made HL tools for healthcare professionals working with people with limited HL, particularly for older people. Other studies (Saunders et al., 2019, McCleary-Jones, 2015) have reviewed courses as part of the curriculum of nursing education or higher education institutions. Our review aimed first to report courses available for healthcare professionals as part of lifelong education, second to identify (if any) courses targeting healthcare users of older age and third to propose core HL training topics for healthcare professionals working with older adults. Future research could focus on the development of nation-specific toolkits to promote HL skills to healthcare professionals working with older adults.

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Declaration statement

The authors declare that they have no competing interests.

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