

Multimedia Appendix 2. Characteristics of the included studies (N=68).

Study and year	Research area	Method of data collection to study health literacy	Method of data analysis	Sample and target population	Health literacy concept used (main concept first), defined by	Tool used to assess health literacy
Agree et al, 2015 [56]	Sociology	Questionnaire survey	Quantitative	346 adults over 35 years	Health literacy by Ratzan and Parker [41]	REALM ^a
Allam et al, 2015 [131]	Communication	Questionnaire survey performance tests	Quantitative	39 marketing students + 197 adults	<i>Bad</i> Health literacy by Schulz and Nakamoto [55]	knowledge test (vaccination)
Austvoll-Dahlgren et al, 2012 [83]	Health sciences	Questionnaire survey, task data	Quantitative	96 parents	Health literacy by Nutbeam [39,47]; Zarcadoolas et al [48]	Search tasks and DISCERN ^b , TPB ^c , PAM ^d
Bailey et al, 2015 [57]	Pharmacy	Questionnaire survey	Quantitative	1077 patients	Health literacy by Ratzan and Parker [41]	NVS ^e
Bickmore et al, 2016 [58]	Computer and information science	Questionnaire survey	Quantitative	89 participants with low HL and computer literacy	Health literacy by Ratzan and Parker [41]	REALM
Blackstock et al, 2016 [104]	Medicine	Interviews	Quantitative	63 women with HIV	eHealth literacy by Norman and Skinner [15]	eHEALS ^f
Chan et al, 2011 [109]	Biomedical informatics	Performance tasks, audio-recordings	Mixed	1 user in pilot phase, 20 users in testing	eHealth literacy by Norman and Skinner [15]	Cognitive task analysis + performance tasks
Chang et al, 2015 [110]	Health education	Questionnaire survey	Quantitative	1869 students and 1365 parents	eHealth literacy by Norman and Skinner [15]	eHEALS; EHIL ^g
Chisolm et al, 2011 [59]	Medicine	Questionnaire survey	Quantitative	180 adolescents	Health literacy by Ratzan and Parker [41]	TOFHLA ^h
Choi et al, 2013 [100]	Gerontology	Questionnaire survey	Quantitative	270 under 60 yrs, 763 over 60 yrs	eHealth literacy by Norman and Skinner [15]	eHEALS
Chung et al, 2015 [60]	Nursing	Questionnaire survey	Quantitative	866 older adults	eHealth literacy by Norman and Skinner [15] Health literacy by Ratzan and Parker [41]	eHEALS
Cnossen et al, 2016 [61]	Medicine	Questionnaire survey	Quantitative	38 patients	Health literacy by Ratzan and Parker [41]	FCCHL (Dutch) ⁱ
Connolly et al, 2015 [111]	Medicine	Focus groups	Qualitative	25 adults with diabetes	eHealth literacy by Norman and Skinner [15]	Qualitative assessment
Crook et al, 2016 [62]	Communication	Questionnaire survey	Quantitative	180 adults from health care clinic	Health literacy by Berkman et al [44]; Ratzan and Parker [41]	NVS
Duncan et al, 2015 [108]	Medicine and public health	Questionnaire survey	Quantitative	301 middle-aged men	Health literacy by Nutbeam [50]; Australian Bureau of Statistics [42]	Active Australia Questionnaire + Dietary behavior literacy
Echt et al, 2011 [84]	Medicine	Questionnaire survey	Quantitative	250 older adults	Health literacy by Nutbeam [39]	S-TOFHLA ⁱ

Fagnano et al, 2012 [63]	Medicine	Questionnaire survey	Quantitative	304 caregivers of children with astma	Health literacy by Ratzan and Parker [41]	REALM
Furnival et al, 2015 [89]	Information science	Questionnaire survey, interviews	Quantitative	73 participants	Health Information Literacy by Shipman et al [20]	EHIL (adapted)
Ghaddar et al, 2012 [64]	Health promotion, public health	Questionnaire survey	Quantitative	261 students	Health literacy by Ratzan and Parker [41]	eHEALS, NVS
Gutierrez et al, 2015 [87]	Medicine	Questionnaire survey	Quantitative	498 adult patients	Health literacy by the American Medical Association [40]	NVS + confidence in filling medical forms
Haun et al, 2015 [112]	Health communication and promotion	Questionnaire survey	Quantitative	819 US veterans	eHealth literacy by Norman and Skinner [15]	BRIEF ^k , eHEALS
Hogan et al, 2016 [113]	Medicine	Questionnaire survey	Quantitative	290 US veterans	eHealth literacy by Norman and Skinner [15]	eHEALS
Hsu et al, 2015 [114]	Health education	Questionnaire survey	Quantitative	525 college students	eHealth literacy by Norman and Skinner [15]; Bodie and Dutta [51]	eHLS ^l
Hu et al, 2012 [95]	Communication	Questionnaire survey	Quantitative	505 patients and members of an online support group	eHealth literacy by Norman and Skinner [15]	eHEALS
Jiang et al, 2016 [65]	Communication	Questionnaire survey	Quantitative	2305 participants	Health literacy by Ratzan and Parker [41]	HINTS ^m health literacy screening measure (adapted)
Kim, 2013 [66]	Information studies	Questionnaire survey	Quantitative	3002 observations	Health literacy by Ratzan and Parker [41]	Single-item: health information search online (yes/no)
Knapp et al, 2011 [115]	Health policy	Questionnaire survey	Quantitative	129 parents	eHealth literacy by Norman and Skinner [15]	eHEALS
Knapp et al, 2011 [116]	Health policy	Questionnaire survey	Quantitative	2371 parents	eHealth literacy by Norman and Skinner [15]	eHEALS
Kobayashi et al, 2015 [67]	Epidemiology and public health	Questionnaire survey	Quantitative	4368 older adults	Health literacy by Ratzan and Parker [41]	Adult Literacy & Life Skills Survey
Koo et al, 2012 [117]	Health sciences	Questionnaire survey	Quantitative	219 sixth-grade school children	eHealth literacy by Norman and Skinner [15]	eHEALS
Lee et al, 2012 [80]	Communication	Questionnaire survey	Quantitative	1812 adults	Health literacy by Berkman et al [44]	Seven health knowledge items
Lee et al, 2015 [96]	Pharmacy	Questionnaire survey	Quantitative	400 patients	eHealth literacy by Norman and Skinner [15]	eHEALS
Lee et al, 2015 [68]	Nursing	Questionnaire survey	Quantitative	2680 hispanic adults	Health literacy by Ratzan and Parker [41]	One-item screening instrument by Chew et al

Li et al, 2015 [118]	Communication	Questionnaire survey	Quantitative	311 members of online support group	eHealth literacy by Norman and Skinner [15]	eHEALS
Li et al, 2013 [127]	Social work and social administration	Questionnaire survey	Quantitative	221 undergraduate students	Mental health literacy by Jorm et al [53]	31 questions; understanding of mental health concepts and application of skills
Lintvedt et al, 2013 [128]	Psychology	Questionnaire survey	Quantitative	163 young adults at risk of depression	Mental health literacy by Jorm et al [53]	Treatment depression literacy; knowledge based
Manafò et al, 2012 [85]	Nutrition science	Questionnaire survey	Mixed	48 older adults	eHealth literacy by Norman and Skinner [15] Health literacy by Nutbeam [39]	eHEALS (adapted)
Manafò et al, 2013 [69]	Nutrition science	Questionnaire survey	Quantitative	67 older adults	eHealth literacy by Norman and Skinner [15] Health literacy by Ratzan and Parker [41]; Rootman and Gordon-El-Bihbety [43]	eHEALS; eSEARCH ^a
Marshall, et al, 2012 [86]	Information science	Questionnaire survey, workshops, interviews	Qualitative	385 answered to survey, 39 participated in the workshop, 18 interviewed	Health literacy by Nutbeam [39] eHealth literacy by Norman and Skinner [15]	Qualitative assessment of information literacy regarding health
Mayberry et al, 2011 [70]	Medicine	Questionnaire survey	Quantitative	61 adults with type 2 diabetes	Health literacy by Ratzan and Parker [41]	Three-item HL screening instrument by Chew (modified)
McCleary-Jones et al, 2013 [71]	Nursing	Questionnaire survey	Quantitative	88 African-American adults	Health literacy by Ratzan and Parker [41]; the American Medical Association [40]	SILS ^o
Meppelink et al, 2015 [81]	Communication	Questionnaire survey, audio-recordings	Quantitative	61 participants with low or limited HL	Health literacy by Berkman et al [44]	Short Assessment of Health Literacy in Dutch (SAHL-D)
Milne et al, 2015 [105]	Medicine	Questionnaire survey	Quantitative	83 cancer patients	eHealth literacy by Norman and Skinner [15]	eHEALS
Mitsutake et al, 2012 [119]	Health and Behavioral Sciences	Questionnaire survey	Quantitative	2970 Japanese adults	eHealth literacy by Norman and Skinner [15]	eHEALS (Japanese version)
Nahm et al, 2012 [120]	Nursing	Questionnaire survey	Quantitative	27 caregiver-care receiver dyads (pair)	eHealth literacy by Norman and Skinner [15]	eHEALS
Neter et al, 2012 [106]	Behavioral sciences	Questionnaire survey	Quantitative	4286 Israeli adults	eHealth literacy by Norman and Skinner [15]	eHEALS
Ossebaard et al, 2012 [121]	Public health	Questionnaire survey	Quantitative	21 patients	eHealth literacy by Norman and Skinner [15]	eHEALS (Dutch version)
Paek et al, 2012 [72]	Advertising and public relations	Questionnaire survey	Quantitative	182 students	eHealth literacy by Norman and Skinner [15] Health literacy by Ratzan and Parker [41]; Zarcadoolas, Pleasant and Greer [48]	eHEALS
Park et al, 2016 [122]	Nursing	Questionnaire survey	Quantitative	108 library users	eHealth literacy by Norman and Skinner [15]	eHEALS

Park et al, 2016 [123]	Nursing	Questionnaire survey	Quantitative	108 adults	eHealth literacy by Norman and Skinner [15]	eHEALS
Reininger et al, 2013 [124]	Health promotion and behavioral sciences	Questionnaire survey	Quantitative	71 adults at risk for diabetes	eHealth literacy by Norman and Skinner [15]	TOFHLA; diabetes knowledge
Rowsell et al, 2015 [101]	Psychology, medicine	Questionnaire survey	Quantitative	64 adults	Health literacy by Nutbeam [50]; Sørensen et al [6]	One-item screening instrument by Chew et al + HLS-EU-16 ^p
Sheng et al, 2013 [125]	Psychology	Questionnaire survey	Quantitative	771 older adults	eHealth literacy by Norman and Skinner [15]	eHEALS
Smith et al, 2015 [73]	Medicine	Questionnaire survey	Quantitative	534 older adults	Health literacy by Ratzan and Parker [41]	NVS
Subramaniam et al, 2015 [88]	Information studies	Questionnaire survey, observation, interviews, focus groups, web portal data	Mixed	30 students	Health literacy by Sørensen et al [6]; Zarcadoolas, Pleasant and Greer [48]; National Network of Libraries of Medicine [46]; the American Medical Association [40]	Health literacy skills inventory (a literature based design)
Sun et al, 2013 [74]	Social medicine and health education	Questionnaire survey	Quantitative	3222 participants	Health literacy by Ratzan and Parker [41]; Berkman et al [44]	A skills-based HL instrument regarding infectious respiratory diseases (Sun)
Tam et al, 2015 [75]	Medicine (dentistry)	Questionnaire survey	Quantitative	100 adults	Health literacy by Sørensen et al [6]; Ratzan and Parker [41] eHealth literacy by Norman and Skinner [15]	REALM-D ^q ; dental knowledge, a two-item HL screening instrument by Chew et al
Taylor-Rodgers et al, 2015 [129]	Psychology	Questionnaire survey	Quantitative	56 young adults	Mental health literacy by Jorm et al [53]	Literacy of Suicide Scale, A-lit ^r , D-lit
Tennant et al, 2015 [76]	Health education and promotion	Questionnaire survey	Quantitative	283 baby boomers and older adults	eHealth literacy by Norman and Skinner [15] Health literacy by Ratzan and Parker [41]	eHEALS
Tse et al, 2015 [130]	Health education	Questionnaire survey	Quantitative	22 adolescents	Oral health literacy by the U.S. Department of Health and Human Services [54]	REALD-30 ^t
van der Vaart et al, 2011 [102]	Psychology	Questionnaire survey	Quantitative	189 patients with rheumatic diseases (study 1), 88 Dutch adults (study 2)	eHealth literacy by Norman and Skinner [15] Health literacy by Baker [49]	eHEALS
van der Vaart et al, 2013 [126]	Psychology	Performance tasks, think-aloud method, interview	Mixed	15 + 16 patients	eHealth literacy by Norman and Skinner [15]; eHealth literacy 2.0 by Norman [52]	Performance tasks
van der Vaart et al, 2011 [103]	Psychology	Questionnaire survey	Quantitative	227 patients	Health literacy by Baker [49]	FCCHL (Dutch version)

Wenhong et al, 2015 [82]	Communication	Questionnaire survey	Quantitative	540 students	eHealth literacy by Norman and Skinner [15] Health literacy Berkman et al [44]	eHEALS
Woods et al, 2016 [99]	Psychology	Questionnaire survey	Quantitative	46 participants with HIV-infection	Health literacy by The Patient Protection and Affordable Care Act [45]	eHEALS, REALM, HIV Knowledge 18, Expanded Numeracy Scale, Short Assessment of Health Literacy, TOFHLA, NVS
Xie, 2011 [77]	Information studies	Questionnaire survey	Quantitative	172 older adults	eHealth literacy by Norman and Skinner [15] Health literacy by Ratzan and Parker [41]	eHEALS
Xie, 2012 [78]	Information studies	Questionnaire survey	Quantitative	218 older adults	eHealth literacy by Norman and Skinner [15] Health literacy by Ratzan and Parker [41]	Computer Anxiety Scale; Attitudes Toward Computers Questionnaire (Efficacy and interest subscales); Computer and Web knowledge tests; Questionnaire of the "satisfaction with the training and changes in participation in one's own health care"
Xie, 2011 [79]	Information studies	Questionnaire survey	Quantitative	156 older adults	eHealth literacy by Norman and Skinner [15] Health literacy by Ratzan and Parker [41]	eHEALS

a Rapid Estimate of Adult Literacy in Medicine

b DISCERN: an instrument for judging the quality of written consumer health information on treatment choices.

c Theory of Planned Behavior

d Patient Activation Measure

e Newest Vital Sign

f eHealth Literacy Scale

g Everyday Health Information Literacy Screening Tool

h Test for Functional Health Literacy in Adults

i Functional, Communicative and Critical Health Literacy Scale

j Short Test for Functional Health Literacy in Adults

k Brief Health Literacy Screening Tool

l eHealth Literacy Scale

m Health Information National Trends Survey

n eSEARCH eHealth Literacy Tool

o Single Item Literacy Screener

p Health Literacy Survey – Europe – 16 Questions

q Rapid Estimate of Adult Literacy in Medicine and Dentistry

r Anxiety Literacy Questionnaire

s Depression Literacy Questionnaire

t Rapid Estimate of Adult Literacy in Dentistry