

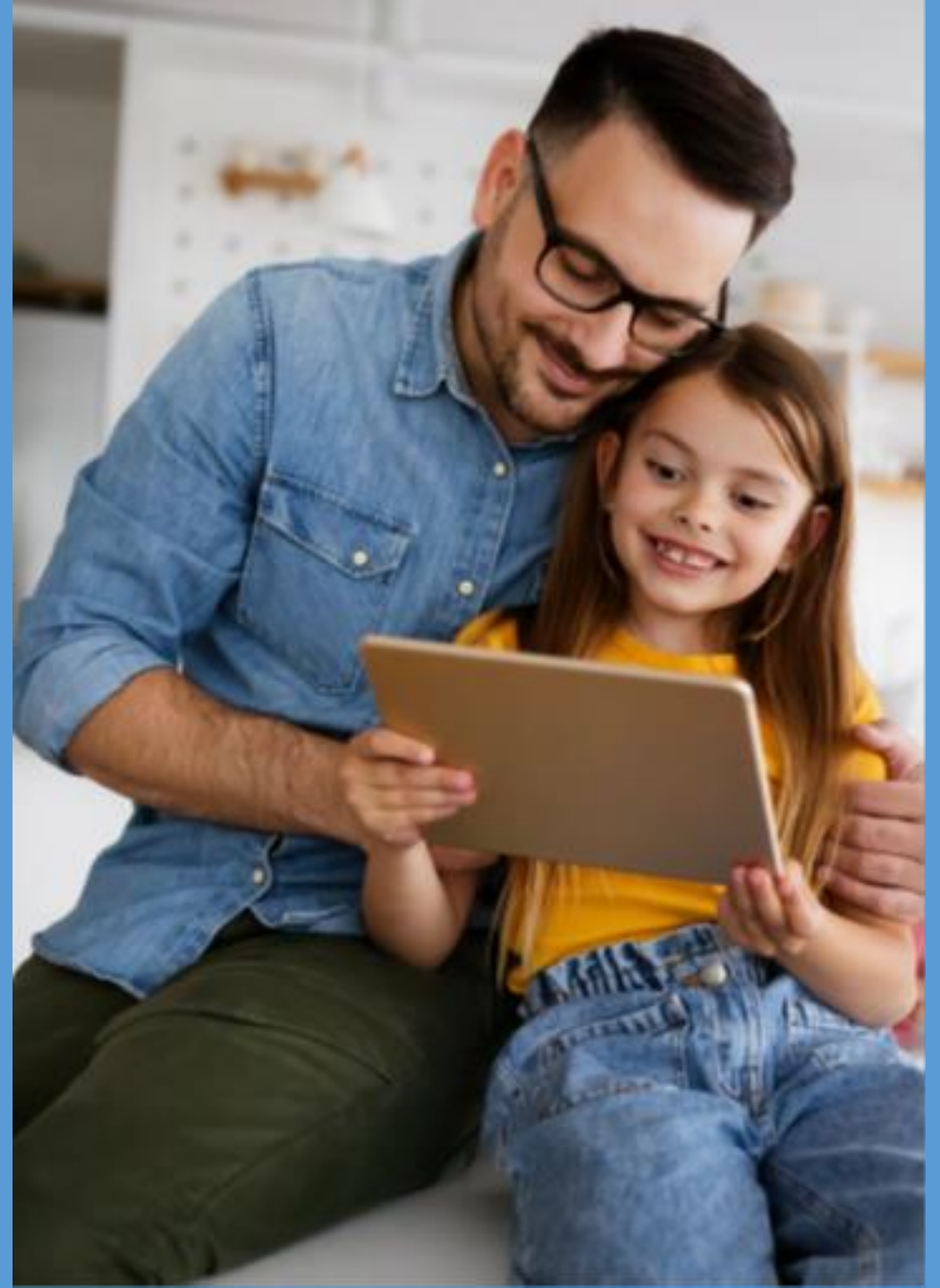
Digital Literacy - a Key Part of Health Literacy

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Outline

- Definitions and global commitments to improve digital health literacy
- Why invest in digital health literacy?
- Why digital health literacy is important for children and adolescents?
- The status of digital (health) literacy - selected examples
- Key implementation strategies
- Resources



A Global Digital Compact



- Incorporate digital literacy into school curriculums to ensure students develop essential skills from an early age
- Provide professional development for educators to effectively teach digital literacy
- Invest in digital infrastructure to support widespread access to technology
- Develop policy and governance frameworks to guide digital literacy initiatives
- Focus on vulnerable and excluded populations, such as women and girls, to bridge the digital divide
- Encourage lifelong learning and continuous skill development in digital literacy
- Provide access to online courses and resources for self-paced learning

Goal: maximum coverage of basic digital skills for as many as possible, while also advancing intermediate or advanced digital skills

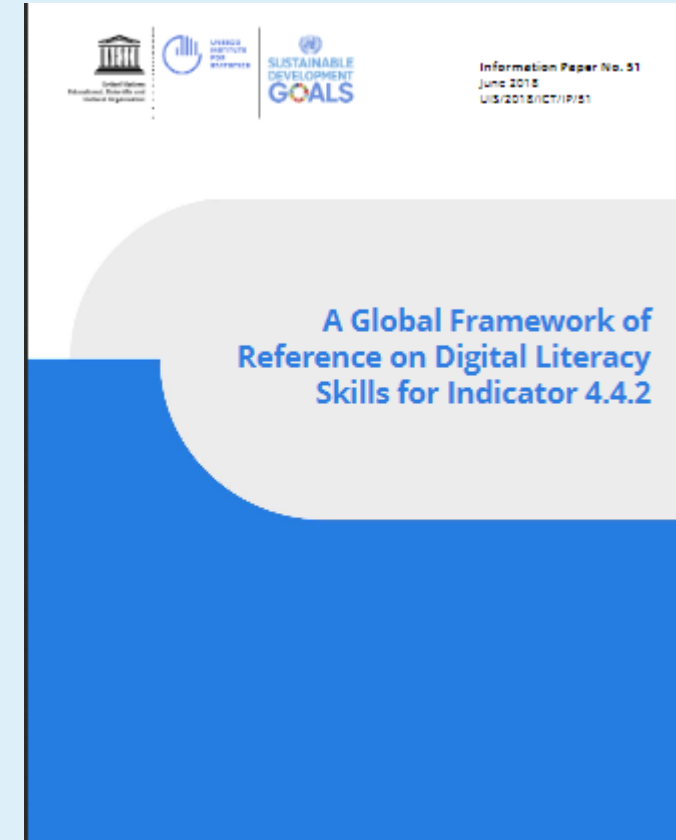
Definition: health literacy

- ❑ Health literacy refers, broadly, to the ability of individuals to “gain access to, understand and use information in ways which promote and maintain good health” for themselves, their families and their communities.
- ❑ Health literacy means more than being able to access web sites, read pamphlets and follow prescribed health-seeking behaviours.
- ❑ It includes the ability to exercise critical judgement of health information and resources, as well as the ability to interact and express personal and societal needs for promoting health
- ❑ It is an observable outcome of health education as a part of health promotion



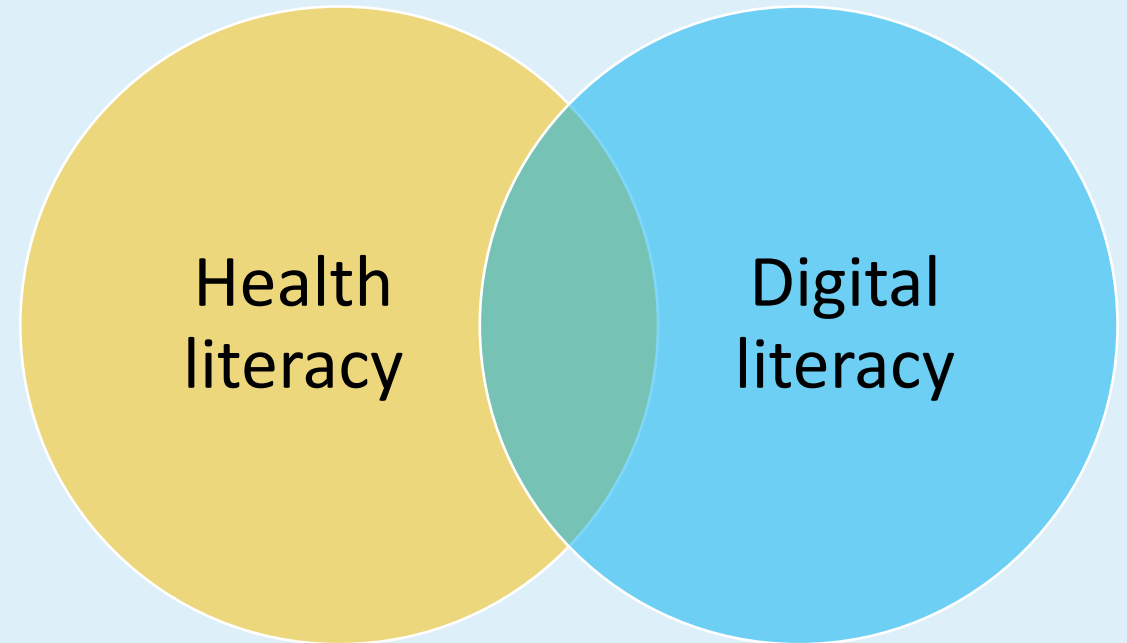
Definition: digital literacy

- ❑ Digital literacy is the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship.
- ❑ It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy.



Definition: digital health literacy

- Digital health literacy, sometimes referred to as eHealth literacy, is defined as the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem ([Norman and Skinner \(2006\)](#))
- It is an important determinant of health



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The cost of inaction (1/2)

Limited Access to Information and Services

- during the COVID-19 pandemic, 43% of learners (706 million) had no internet access at home (UNESCO 2021)

Employment Challenges

- nearly one in three workers lack foundational digital skills, which are critical for most jobs (National Skills Coalition)

Social Exclusion

- 96% of the 2.9 billion people still offline live in developing countries, exacerbating social exclusion (ITU 2021)

Economic Disadvantages

- approximately half of the world's population (3.6 billion people) lack internet access, limiting their participation in the digital economy (UNESCO 2021)

Educational Barriers

- 826 million students were kept out of the classroom during the COVID-19 pandemic due to lack of access to digital tools (UNESCO 2021)

Vulnerability to Cyber Threats

Health risks

- Loneliness, social isolation, mental well-being, harmful health behaviors due to misinformation, increased hospital admissions
- Lack of ability to access health information and services

The cost of inaction (2/2)

- [Groups with lower health literacy](#): older persons, females, low socio-economic status, persons with cognitive and medical impairments, including memory loss and hearing and visual impairments

Health Outcomes and Consequences	Main conclusions
Health promotion	Individuals with better digital health literacy were able to self-manage and engage in their own medical decisions and showed greater ability in following preventive public health measures.
Quality of life	Individuals with good digital health literacy had higher quality of life, sense of purpose, and sense of optimism.
Disease prevalence	Individuals with better digital health literacy have reported lower numbers of disease cases.
Mental and psychological states	Individuals with higher digital health literacy are better equipped to manage their mental state. Individuals are also able to avoid negative emotions and prevent psychological issues.
Health status	Individuals with higher digital literacy reported better long term disease control.

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Why digital health literacy is important for children and adolescents?

- ❑ Increasingly, adolescents are turning to online sources like websites and social media for health-related information
 - ❑ A survey of Australian adolescents found 78% and 77% of participants reported using websites and social media respectively when seeking health-related information
- ❑ Adolescents favour the ease of access, convenience and privacy of the internet in comparison to traditional sources of health information
- ❑ This level of accessibility and abundance of information can empower adolescents as active agents in their health and address feelings of information poverty
- ❑ They can take charge of their health by using digital tools to monitor and manage chronic conditions, track symptoms, and adhere to treatment plans.
- ❑ Yet there are developmental vulnerabilities that put children and adolescents at increased online risks
- ❑ Websites and social media can rapidly spread health misinformation, the ability to identify it as such is critical since it can lead to negative health outcomes in adolescents if acted upon
- ❑ the dark 'dark side' of connectivity: cyberattacks, scams, fake news, or harmful content (e.g. child abuse, sexual exploitation, aggressive marketing)
- ❑ Becoming overly obsessed with their bodies' shape and size when using self-tracking technologies and comparing their bodies with social media influencers they follow
- ❑ To take advantage of the advent of fitness apps, wearables and teleconsultations requires digital literacy

Digital literacy will become even more important with the advance of e-health

- E-health is an emerging and fast-developing field of research and practice that involves the application of digital technologies (i.e. those delivered via digital means, such as computers and smart phones) to support or deliver health interventions.

The screenshot shows the Cochrane Library website interface. At the top, it displays the Cochrane Library logo and the tagline 'Trusted evidence. Informed decisions. Better health.' The page is accessed via the Swiss Academy of Medical Sciences (SAMS). The review title is 'E-Health interventions for anxiety and depression in children and adolescents with long-term physical conditions'. The authors listed are Hiran Thabrew, Karolina Stasiak, Sarah E Hetrick, Stephen Wong, Jessica H Huss, and Sally N Merry. The review was published on 15 August 2018. The DOI link is <https://doi.org/10.1002/14651858.CD012489.pub2>. The page also features a navigation menu with options like 'Cochrane Reviews', 'Trials', 'Clinical Answers', 'About', and 'Help'. There are also options to 'Collapse all' and 'Expand all'.

Integration of e-health services across EU

The eHealth Digital Service Infrastructure (eHDSI) is an infrastructure ensuring the continuity of care for European citizens while they are travelling abroad in the EU.

Services:

- ePrescription and eDispensation
- Patient summaries
- medical images, lab results and hospital discharge reports (in the long term)



My health @ EU
eHealth Digital Service Infrastructure
A service provided by the European Union

https://health.ec.europa.eu/ehealth-digital-health-and-care/electronic-cross-border-health-services_en

Electronic health records: special considerations for children and adolescents

- ❑ It is only a matter of time before EHRs will be established across most of the globe
- ❑ Policy efforts are under way to ensure that EHRs contribute to people-centered health systems
- ❑ One should not, however, assume that these efforts would automatically benefit adolescents.
- ❑ In fact, digital technologies for adolescents are not taken into consideration when electronic health records are implemented, with the potential of harm
- ❑ There are critical questions that need to be addressed:
 - ❑ How and when adolescents should be able to access their EHRs (which was established with the Health Information Privacy Rule)
 - ❑ At which age, and under what circumstances, should adolescents have full control of their EHRs?
 - ❑ How is a shared access to EHRs, when a parent/legal guardian, handled?
 - ❑ Does the level of access to EHRs differ depending on the task involved in dealing with EHRs?

Digital health literacy



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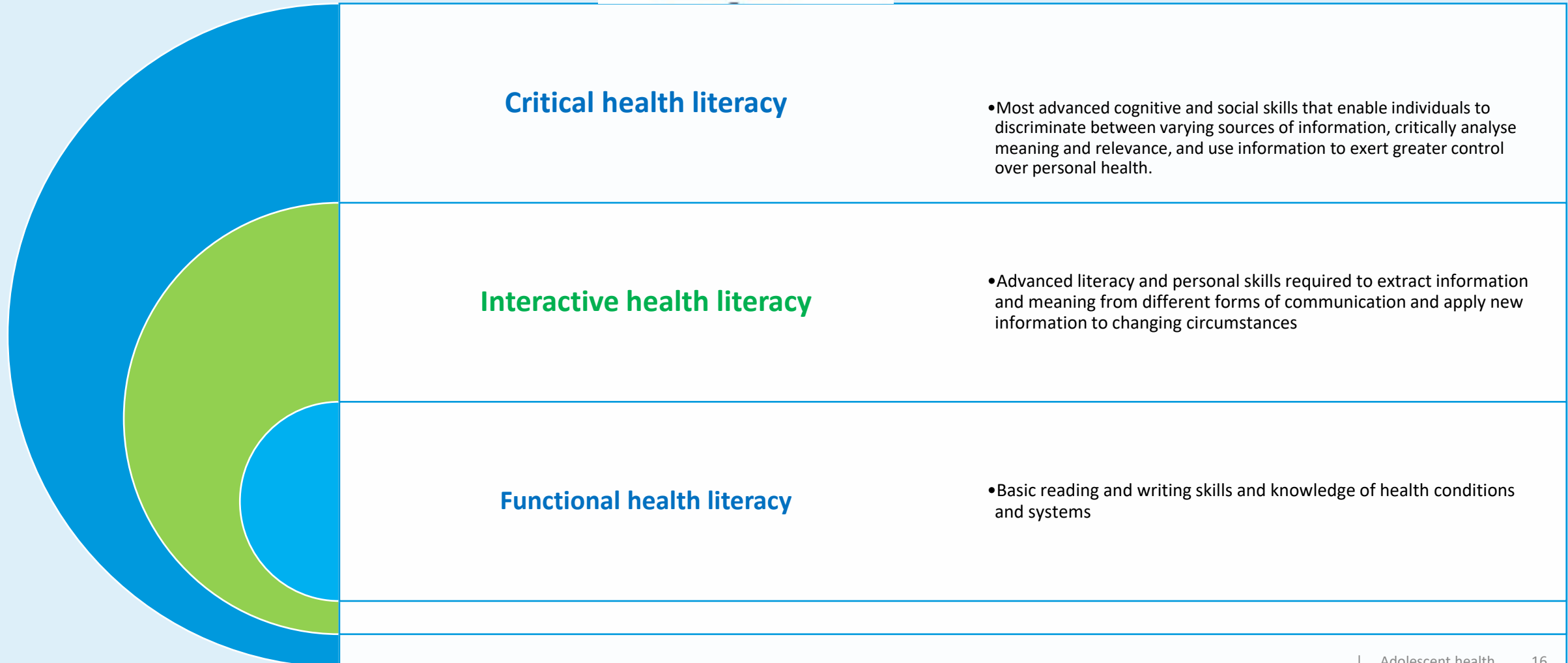
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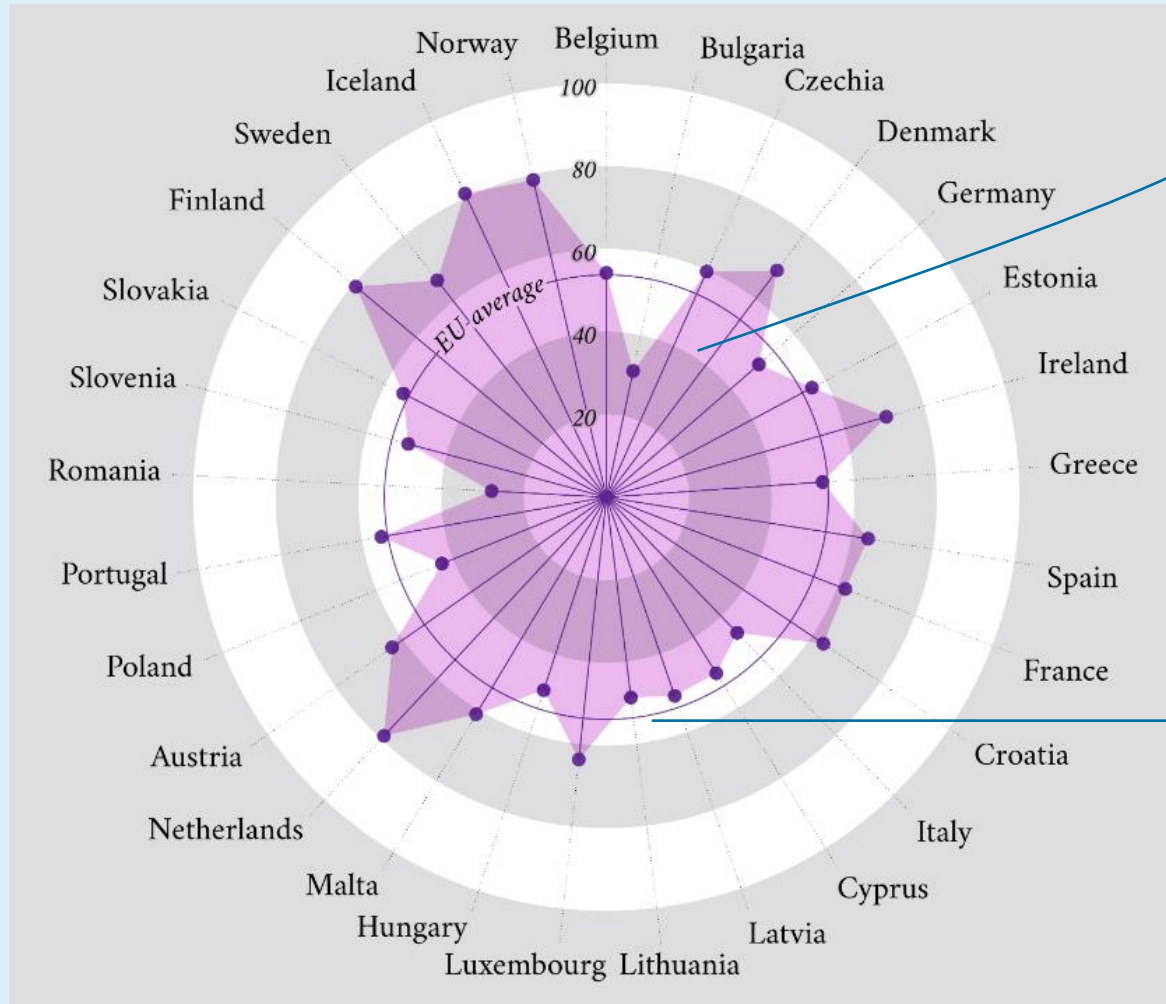
Levels of health literacy



- Nutbeam D. Defining, measuring and improving health literacy. Health Education Research Promotion 2000; 19(6): 549-562. <https://doi.org/10.7143/jhep.42.450>.



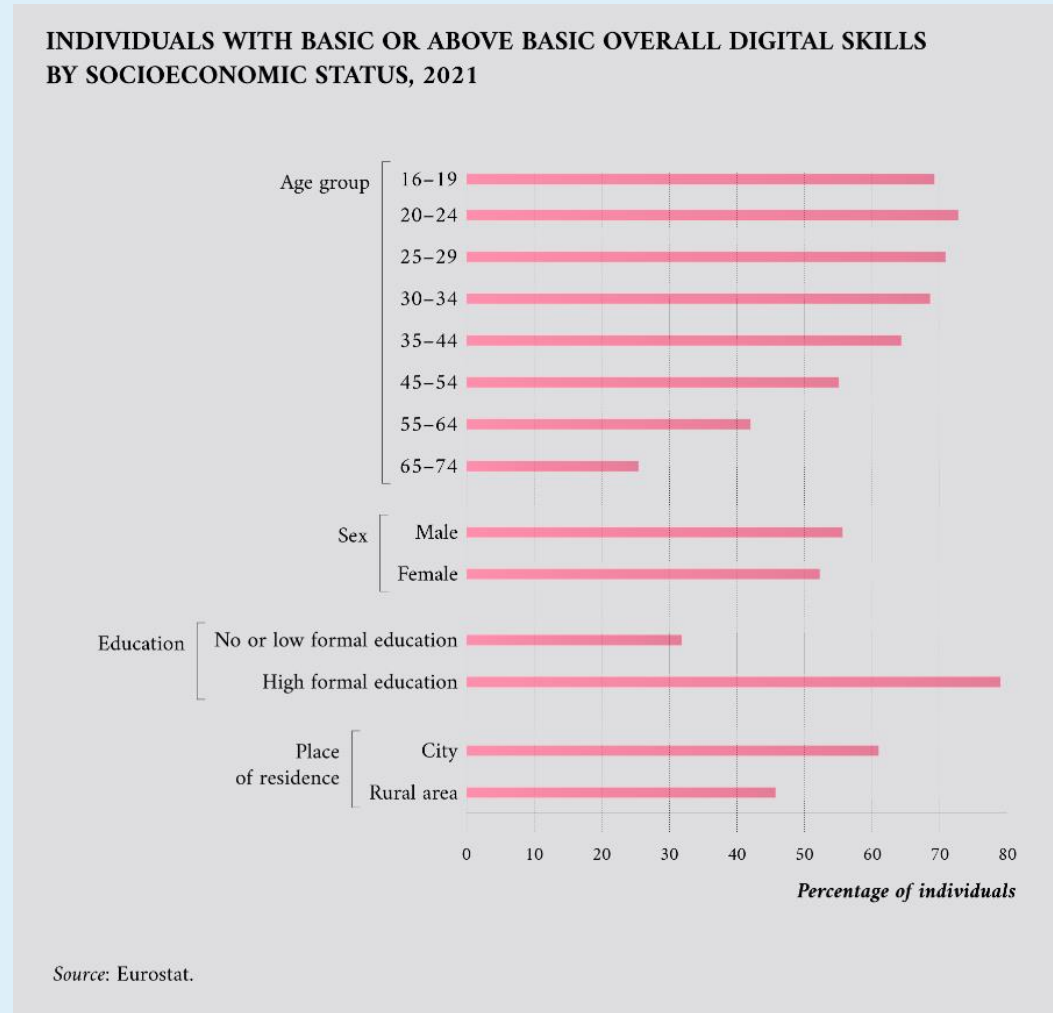
Digital literacy in the EU



Length of the radius - % individuals with basic or above basic overall digital skills

The circle indicates EU average

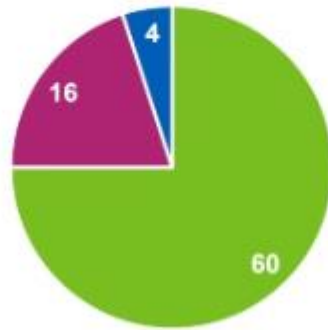
Digital literacy in the EU (cont.)



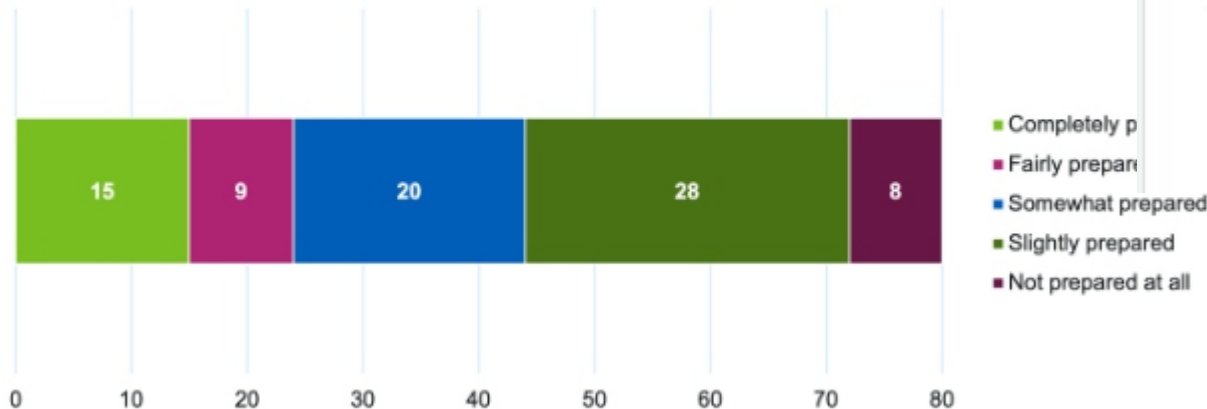
Digital literacy among health-care providers

- <https://digital-transformation.hee.nhs.uk/building-a-digital-workforce/current-status-of-digital-technology-in-health-and-care-education/overall-key-findings-the-digital-literacy-digital-technologies-skills-and-techniques-currently-being-taught>

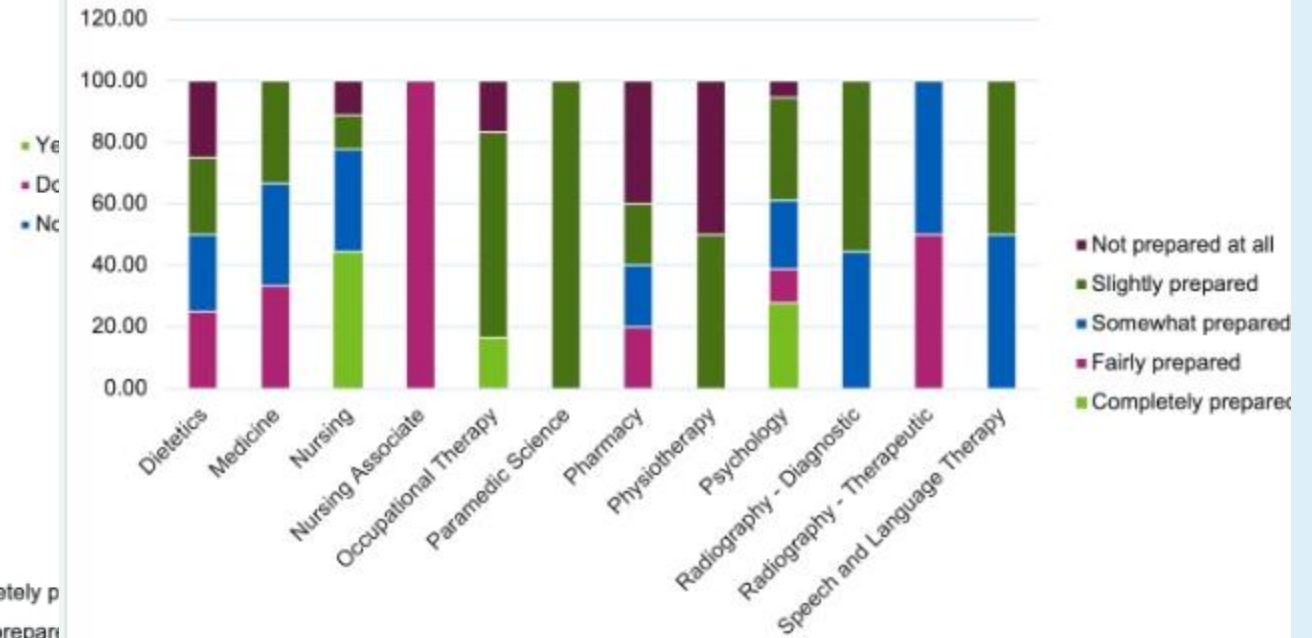
Are you responsible for taking care of your own digital literacy learning?



How prepared do you feel about using digital technologies practically in a clinical environment?



How prepared do you feel about using digital technologies practically in a clinical environment? Profession breakdown (Students)

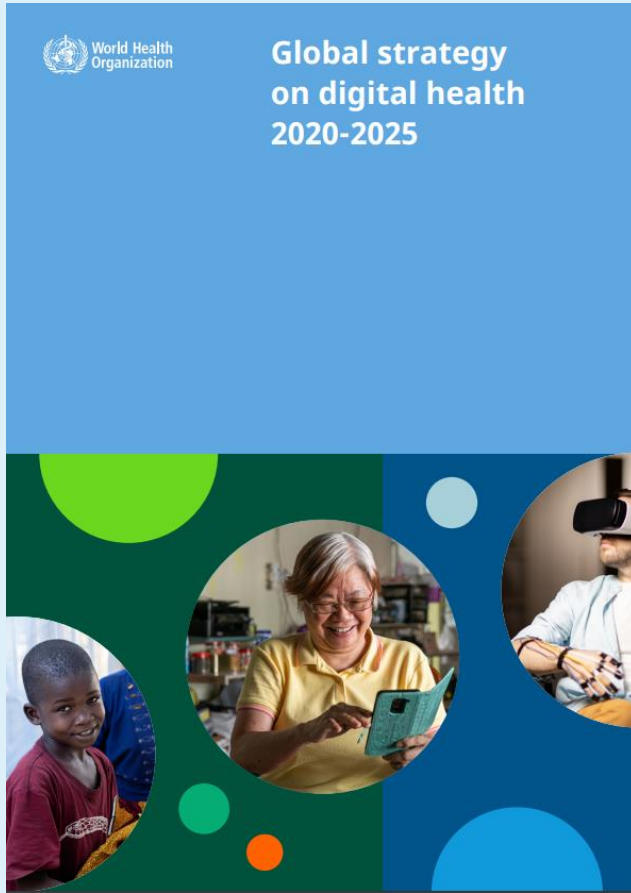


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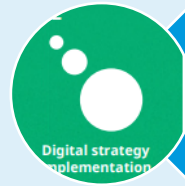
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Implementation strategies to improve digital health literacy



SO1: Promote global collaboration and advance the transfer of knowledge on digital health



SO2: Advance the implementation of national digital health strategies



SO3: Strengthen governance for digital health at global, regional and national levels



SO4: Advocate people-centred health systems that are enabled by digital health

- Development of appropriate literacy - not only in patients, families and communities but also in health workers
- Strengthen gender equality and health equity approaches
- Accessibility for people with disabilities with enhanced digital health skills
- Develop digital health training or Massive Open Online Courses to improve digital health literacy
- Engagement of end-users in solutions design and implementation

Key implementation strategies

In the education sector

- Integration of Digital Skills in Curricula
- Teacher Training and Professional Development:
- Access to Digital Tools and Resources
- Promoting Inclusive Digital Education
- Policy Development and Advocacy

In the health sector

- Integrating digital health literacy into medical and nursing curricula
- Real-Time Technical Support:
 - Provide support and coaching to help health workers efficiently use digital tools and reduce their fear of new technologies.
- National Digital Health Strategies:
 - Encourage the development and implementation of national digital health strategies with a focus on improving digital infrastructure, access, and literacy.

Understanding barriers and facilitators to improve digital health literacy among providers

- 108 systematic reviews and 9 ongoing studies
- Digital health technologies, can improve the performance and satisfaction of health-care employees, decrease the cost of medical services and enhance the quality of care
- Improving patients' access to their medical results and empowering patients to be more involved with their care, digital solutions can reduce the number of unwanted tests or prescriptions
- **Barriers** include infrastructure and technical issues, resistance to change, skepticism, workload-related concerns, difficulties understanding the technology, low literacy, or poor writing skills
- **Solutions** include training, coaching, valuating HP's perception of usefulness and willingness to use, and multi-stakeholders incentives

npj | digital medicine www.nature.com/npjdigitalmed

REVIEW ARTICLE OPEN Check for updates

Barriers and facilitators to utilizing digital health technologies by healthcare professionals

Israel Júnior Borges do Nascimento^{1,2}, Hebatullah Abdulazeem³, Lenny Thinakaran Vasanthan⁴, Edson Zangiacomi Martinez⁵, Miriane Lucindo Zucoloto⁵, Lasse Østengaard⁶, Natasha Azzopardi-Muscat¹, Tomas Zapata⁶ and David Novillo-Ortiz^{1,✉}

Digital technologies change the healthcare environment, with several studies suggesting barriers and facilitators to using digital interventions by healthcare professionals (HPs). We consolidated the evidence from existing systematic reviews mentioning barriers and facilitators for the use of digital health technologies by HP. Electronic searches were performed in five databases (Cochrane Database of Systematic Reviews, Embase[®], Epistemonikos, MEDLINE[®], and Scopus) from inception to March 2023. We included reviews that reported barriers or facilitators factors to use technology solutions among HP. We performed data abstraction, methodological assessment, and certainty of the evidence appraisal by at least two authors. Overall, we included 108 reviews involving physicians, pharmacists, and nurses were included. High-quality evidence suggested that infrastructure and technical barriers (Relative Frequency Occurrence [RFO] 6.4% [95% CI 2.9–14.1]), psychological and personal issues (RFO 5.3% [95% CI 2.2–12.7]), and concerns of increasing working hours or workload (RFO 3.9% [95% CI 1.5–10.1]) were common concerns reported by HPs. Likewise, high-quality evidence supports that training/educational programs, multisector incentives, and the perception of technology effectiveness facilitate the adoption of digital technologies by HPs (RFO 3.8% [95% CI 1.8–7.9]). Our findings showed that infrastructure and technical issues, psychological barriers, and workload-related concerns are relevant barriers to comprehensively and holistically adopting digital health technologies by HPs. Conversely, deploying training, evaluating HP's perception of usefulness and willingness to use, and multi-stakeholders incentives are vital enablers to enhance the HP adoption of digital interventions.

npj Digital Medicine (2023)6:161 | <https://doi.org/10.1038/s41746-023-00899-4>

Understanding barriers and facilitators to improve digital health literacy among adolescents

- <https://bmcpublichealth.biomedcentral.com/counter/pdf/10.1186/s12889-022-13599-7.pdf>

- ❑ Adolescents possess many important digital health literacy skills and generally feel self-efficacious in using them
- ❑ Health literacy needs improving, especially in confidently appraising health information they find online and on social media.
- ❑ Co-designed educational interventions with adolescents and health providers are required

Taba et al. *BMC Public Health* (2022) 22:1223
<https://doi.org/10.1186/s12889-022-13599-7>

BMC Public Health

RESEARCH Open Access

Check for updates

Adolescents' self-efficacy and digital health literacy: a cross-sectional mixed methods study

Melody Taba^{1,2}, Tiffany B. Allen¹, Patrina H.Y. Caldwell^{1,3}, S. Rachel Skinner^{1,3}, Melissa Kang⁴, Kirsten McCaffery² and Karen M. Scott^{1*}

Abstract

Background: The internet and social media are increasingly popular sources of health information for adolescents. Using online health information requires digital health literacy, consisting of literacy, analytical skills and personal capabilities such as self-efficacy. Appraising trustworthiness and relevance of online health information requires critical health literacy to discriminate between sources, critically analyse meaning and relevance, and use information for personal health. Adolescents with poor digital health literacy risk using misinformation, with potential negative health outcomes. We aimed to understand adolescents' contemporary digital health literacy and compared self-efficacy with capability.

Methods: Adolescents (12–17 years) completed an eHEALS self-report digital health literacy measure, a practical search task using a think-aloud protocol and an interview to capture perceived and actual digital health literacy. eHEALS scores were generated using descriptive statistics, search tasks were analysed using an observation checklist and interviews were thematically analysed based on Social Cognitive Theory, focussing on self-efficacy.

Global youth perspectives on digital health promotion

Research | [Open access](#) | Published: 25 July 2023

Global youth perspectives on digital health promotion: a scoping review

[Agata Ferretti](#) , [Shannon Hubbs](#) & [Effy Vayena](#)

BMC Digital Health 1, Article number: 25 (2023) | [Cite this article](#)

2873 Accesses | 5 Citations | 1 Altmetric | [Metrics](#)

Abstract

Background

- Target population of adolescents and young adults (AYAs)
- Analyzed 50 studies, mostly from the global North

- Generally, a positive attitude toward digital health promotion (DHP)
- Unlike in the general literature, young people do not perceive privacy as particularly relevant when reflecting on DHP
- Sensitive data (such as mental health, sexual reproductive health, or substance abuse prevention) engender stronger views about data security and anonymization
- Call for a personalized response to youth needs and questions, user interface design is important.
- DHP should result from a co-creative process that places young people at the center and allows them to provide valuable input.

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Resources (1/4)



Focuses on capacity and skills development in the digital era, offering insights into digital literacy frameworks, teaching methods, and the impact of new technologies on skills development



A guide for governments to develop national digital skills strategies



Resources (2/4)



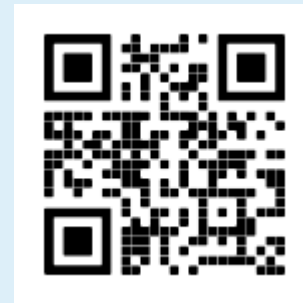
aims to sensitize families to the potential risks and threats and help cultivate a healthy and empowering online environment at home, and in the classroom



Aims to support creating a safer and age-appropriate online environment
Highlights key areas for protecting and promoting children's rights

Proposes standard processes to handle child sexual abuse material

Special attention to children living with disabilities and other vulnerable groups



Resources (3/4)

The Game
Sango's Adventures: discover
online safety for younger children



The game is designed to teach children from 9 to 12 years old, all they need to know about online safety.

Through this colorful and engaging experience, you will learn through play in an interactive and fun way.



Training on Child Online Protection for 9 to 12 year olds

The App
AskMe: Your online safety
friend (Beta)

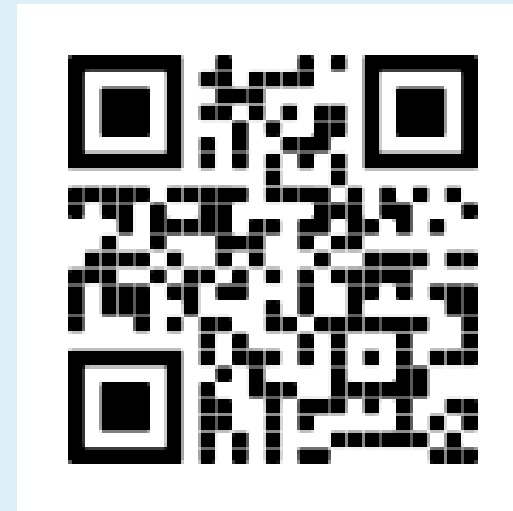


The app is designed to empower young people with the knowledge and skills to safely navigate the online world.



- <https://www.itu-cop-guidelines.com/children>

Resources (4/4)



Key messages

- The importance of digital health literacy is recognized as part of the sustainable development agenda in recent global commitments
- Digital health literacy already is, and will become increasingly so, an important determinant of health – health literacy IS digital
- Children and adolescents are an important target group for policies on digital and digital health literacy
- Research on the status of digital (health) literacy is emerging, and shows that strategies should take into account barriers as reported by providers and adolescents, and solutions should be co-created
- Health and education sector are important custodians for implementing strategies to improve children and adolescents' digital health literacy
- Resources from WHO and other UN agencies exist to support policy makers and end users in improving digital health literacy



THANK YOU!

- <https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/adolescent-and-young-adult-health>

