

# **Digital Health Literacy in Schools Study**

Sub-study

Digital Health Literacy of School Educators (GLOBHL: School Educators)

School educators survey questionnaire (DHL-EQ)

Questionnaire and scale documentation

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### **Background**

The GLOBHL Digital Health Literacy in Schools Study is comprised of two surveys to examine digital health literacy in the school setting, focusing on students and educators (teachers and school staff). The present scale documentation is based on the GLOBHL: School Educators sub-study and introduces the "Digital Health Literacy of School Educators Survey Questionnaire" (DHL-EQ). In Germany, the survey was conducted in 2022/2023 (Dadaczynski & Okan 2023; Rangnow et al., 2024; Stauch et al., 2025). The main objective of the educator study is to investigate digital health literacy of teaching and non-teaching school staff. The following sections will lay out the background of the study and its research questions.

### Health literacy in a digitalized world

The proliferation of digital technologies, media platforms and information modalities has increased exponentially over the years, driven in particular by the COVID-19 pandemic. The rapid rise of the internet and social media has significantly changed the way information is disseminated and received on a global scale. The internet provides the benefit of fast and convenient access to a vast amount of information, while also enabling communication with healthcare professionals through various media platforms, including social networking sites, messaging apps, and video streaming services (Chen and Wang 2021). Although the internet has significantly broadened access to diverse information and effective health interventions, it also presents challenges due to the heterogeneity and frequently unregulated nature of its sources. The capacity for individuals to share and post information online without prior verification can result in an overabundance of content with varying levels of quality, thereby facilitating the potential dissemination of misinformation (Zarocostas et al. 2020; Purnat et al., 2023). Dealing appropriately with information diversity and heterogeneity requires skills that are referred to as health literacy in the context of health promotion, prevention and health care. Digital health literacy can be seen as a domain-specific concept of health literacy and describes the skills required to access, understand, appraise, and use health information and services via digital sources. It enables people to respond to changing media and digital environments and to take action on both, the digital and commercial, determinants of health. Based on Van der Vaart and Drossaert (2017), digital health literacy comprises seven sub-dimensions that can be linked to the three domains of health literacy (functional, critical and interactive) recommended by Nutbeam (2000) (see figure 1). It also has close ties to the German digital and media literacy curriculum, as the original seven dimensions of the digital health literacy model overlap with core competencies addressed by digital and media literacy.

1



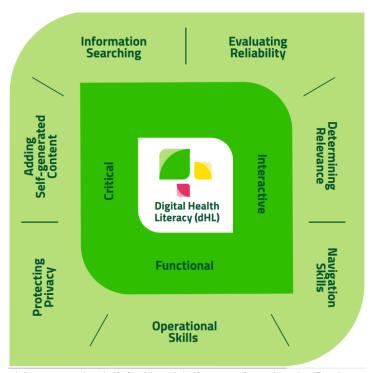


Figure 1: Conceptual framework of digital health literacy in schools (Dadaczynski & Okan, 2023)

### Health of school staff and school health promotion during the pandemic

The global COVID-19 pandemic was accompanied by increased workloads for teachers, which have been repeatedly documented in the literature. The results of a qualitative study indicate that elementary school teachers experienced stressors related to their professional roles, concerns about student well-being, and frustrations with administration and other organisations related to pandemic safety measures (Robinso et al., 2023). Reviews have been able to map the negative impact of the pandemic on teachers' wellbeing and mental health (Katsarou et al., 2023, Ozamiz-Etxebarria et al., 2021). The focus here is primarily on teachers, while non-teaching school staff have hardly been the subject of research to date. In addition, studies on mental health predominate, while physical health and health behaviours related to the COVID-19 pandemic and post-pandemic have hardly been studied.

Finally, it has been argued that, especially in times of crisis, schools must create an environment that maintains and promotes the health of all people. This requires a whole-school approach such as the Health Promoting School (Brivio et al., 2021; Sormunen et al., 2022; Velasco et al., 2022). However, the implementation status of school health promotion and its influencing factors during the pandemic have been barely examined during post pandemic times. Findings from Germany revealed a low level of implementation for aspects of teaching, learning, and working conditions as well as for participation and cooperation with community stakeholders during the pandemic (Dadaczynski et al., 2022).

### Research questions

Based on the background provided, GLOBHL: School Educators addressed the following research questions

- What is the state of digital health literacy among teaching and non-teaching school staff?
- What sociodemographic and school-related factors are associated with school staffs' digital health literacy?
- What is the state of digital health literacy teaching schools?



- How can physical and mental health and health behaviour of teaching and non-teaching school staff be characterised and can sociodemographic and school-related differences be identified?
- What is the association of digital health literacy with health behaviour, physical and mental health of teaching and non-teaching school staff?
- How can the health information-seeking behaviour of teaching and non-teaching school staff be characterized and can sociodemographic and school-related differences be identified?
- What is the status of implementation of school-based health promotion and what differences can be identified by individual and school-related factors?

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## Questionnaire

Digital health literacy of school educators School educators survey questionnaire (DHL-EQ)

#### Dear teachers,

In recent years, digitization has advanced significantly, and in the area of health, information is increasingly being provided and consumed in digital formats. As a result, the ability to access, understand, assess, and apply health information is becoming increasingly important for mastering health challenges in everyday life.

However, it is not yet known whether these skills, also known as digital health literacy, have already found its way into schools and what needs do schools have concerning this important topic.

We would like to invite you to participate in our study on digital health literacy. In addition to digital health literacy, our study also investigates information and media behaviour, health behaviour, and further health topics.

Completing the questionnaire takes about 20-25 minutes. Participation in the survey is of course voluntary and anonymous, i.e., we cannot draw any conclusions about your person. You are also free to quit the survey or skip single questions at any time. In addition, it is possible to temporarily pause the survey and continue it at a later point in time by clicking on the survey link again.

Thank you for your support!

Your project team from [Please include your institute or name here]

### Why do we collect and process your data?

With your participation, you will be making an important contribution to shedding more light on a field that has hardly been explored to date. The results of this survey are to be used to provide schools with concrete support in implementing (digital) health literacy measures (e.g., as part of your existing work in the area of media literacy). The data will be processed anonymously and exclusively by qualified staff of [Please include your institute or name here] for research purposes.

### How can you contact us?

The study team can be reached at the following e-mail address:

[Please include your contact details here]



## 1 Sociodemographic information and school characteristic

1	Please ind	icate your b	oiolo	gical se	x. Are you .	<b></b>				
	☐ Male			Female	Э	☐ Interg	ender			
2	Please ind	icate how r	nucl	h you fee	el like a woı	man/man.				
	Female								Male	
3	How old ar	re you?								
	I am	years old.								
4	In what co	untry were	you	born?						
	☐ Germa	any		Other	country, na	mely		☐ Not spe	ecified	
5		untry was y								
	☐ Germa	any		Other	country, na	mely		☐ Not spe	ecified	
6	lm what as				h a un O					
6		untry was y					_	<b>-</b>		$\neg$
	☐ Germa	any	Ц	Other	country, na	mely	L	☐ Not spe	ecified	
7	Please ind	icate in whi	ich f	ederal s	tate / provi	nce you wo	rk			
,					•	<u>-</u>				
	<u> </u>	Fleat	se at	иарт то т	ne country	of the study	/			
8	What is yo	ur current p	osit	tion at y	our school?	)				
	School pri	ncipal								]
	Member of	f the schoo	l lea	dership	board					]
	Teacher (w	ithout prev	/ious	sly ment	ioned lead	ership funct	tion)			]
	Other peda	agogical sta	aff (e	e.g., sch	ool social v	vorker, scho	ool psycholo	ogist, etc.)		]
9	What is yo	ur current e		-						
	☐ Full-ti	me 🗆	Pai	rt-time,	contractua	al weekly w	vorking hou	ırs (hours	per wee	∍k)
10	_	<u>-</u>		_		~ .	veek, includ	_		
	Please als nings.	o include ti	imes	s outside	e of regular	school hou	ırs, e.g., we	ekends an	d eve-	
		working ho	ours	(incl. ov	vertime):					
11		<del>-</del>	-		<del>-</del>	ou work ma of school	inly. please ind	icate the t	vne of	
		vhich you a				31 3011001,	ptodoc ind	iouto trio t	, 00 01	



	□ Please adapt to	the coun	try of the	study			
12	How many students attend yo	ur school	2				
12	Please indicate the number of						
	r tease malcate the number of	students.	<u> </u>				
13	Is your school in a social hotsp	oot?					
	☐ Yes ☐ No			Don´t kno	W		<u></u>
2 Hea	alth information seeking be	haviour					
14	In the following, we are intererelated to health. The focus this, we mean not only tradition words, all digital sources. We issues: In addition to the early information on how health car fitness, preventive services).	here is or nal websi understa y detectio	n internet tes but al nd the top n and ma	-based souso social moic of healt nagement	irces of ir edia and h to inclu of illness	nformation apps - in o de all kind , this inclu	n. By other ds of udes
14a	For whom and how often hav internet in the last 12 months?	_	rched for	health-rela	ated infor	mation on	the
		Very fre- quently	Fre- quently	Occasio- nally	Rarely	Very rarely	Never
	For myself						
	For others (in a private context)						
	For others (in the context of school)						
	14b: Filter question, only appear r" for item 14a. Why and how often have you s in the <u>last 12 months</u> for school	earched f	or health-	related info		on the inte	
		Very fre- quently	Fre- quently	Occasio- nally	Rarely	Very rarely	Never
	To better understand colleagues' health and resulting needs.						
	To better understand pupils' health and resulting needs.						
	To feel more confident in dealing with pupils who are ill.						
	To address prevention and health promotion topics in class.						
	To organise a project/ project						



	To initiate prevention and health promotion activities among the staff.						
	Other, namely:						
15	How often do you use the following This refers to any kind of use, bot	_					
			Every day	At least 1x per week	At least 1x per month	Less than 1x per month	Never
	Health Information at Wikipedia a lar online-encyclopaedias	and simi-					
	Websites of health insurance cor	mpanies					
	Health portals [e.g., please insert try-specific example]	t a coun-					
	Website from doctors, hospitals, tation, or care facilities	rehabili-					
	Guidebook-communities with he lated content [e.g., please insert try-specific example]						
	Online/Internet pharmacies						
	Health forums and communities cally on health and disease topic	-					
	Comparison portals to search for tors, hospitals and nursing home please insert a country-specific e	s [e.g.,					
	Social media with health-related (e.g., Facebook, Instagram, Twitte YouTube, TikTok)						
	Blogs on health topics						
	Websites of non-profit health org tions, independent patient or self organisations						
	Digital devices for tracking health lated indicators (e.g., blood glucd ter, pedometer, fitness tracker)						
	Health apps on your smartphone						
	Messenger services (e.g., Whats/ nal, Threema) [please adapt to th try of the study]						
	Tools for digital interaction with healthcare providers (e.g., video tation or written communication email)						



## 3 Digital health literacy

16 16a	Following questions are about how easy or difficult related information.  Health-related information refer to all kinds of top detection and management of disease or on how to nutrition, exercise, fitness).  When you search the Internet for health-related in	ics and inf maintain	ormation or promo	, e.g., on e te health (e	early e.g.,
	it for you to		,	,	
		Very easy	Easy	Difficult	Very difficult
	use the keyboard of a computer, tablet or smartphone (e.g., to type words)?				
	use the mouse (e.g., to put the cursor in the right field or to click)?				
	use the buttons or links and hyperlinks on web- sites?				
16b	When you search the Internet for health-related in pen that	formation	, how ofte	en does it h	пар-
		Never	Rarely	Some- times	Often
	you lose track of where you are on a website or the Internet?				
	you do not know how to return to a previous page?				
	you click on something and get to see some- thing different than you expected?				
16c	When you search the Internet for health-related in it for you to	formation	, how eas	y or difficu	ılt is
		Very easy	Easy	Difficult	Very difficult
	make a choice from all the information you find?				
	use the proper words or search query to find the information you are looking for?				
	··· find the exact information you are looking for?				
16d	When typing a health-related message (e.g., to you media such as Facebook or Twitter), how easy or d If you do not write, publish, or comment on health-the internet (e.g., email, messenger services, forum these questions unanswered.	lifficult is it -related m	t for you to essages o	o or postings	on
		Very easy	Easy	Difficult	Very difficult
	clearly formulate your question or health-re- lated worry?				



	express your opinion, thoughts, or feelings in writing?				
	write your message as such, for people to understand exactly what you mean?				
16e	When you search the Internet for health-related in it for you to	formation,	how easy	or difficu	lt is
	icioi you to	Very easy	Easy	Difficult	Very
	decide whether the information is reliable or not?				difficult
	decide whether the information is written with commercial interests (e.g., by people trying to sell a product)?				
	check different websites to see whether they provide the same information?				
16f	When you post a message on a public forum or so If you do not write, publish, or comment on messa public forums or social media, please leave these	ges or post	ings abo	ut health i	n
		Very easy	Easy	Difficult	Very difficult
	decide whether the information is reliable or not?				
	decide whether the information is written with commercial interests (e.g., by people trying to sell a product)?				
	check different websites to see whether they provide the same information?				
16g	When you post a message on a public forum or so If you do not write, publish, or comment on mess public forums or social media, please leave these	sages or po	ostings al	oout healt	th in
		Never	Rarely	Some- times	Often
	do you find it difficult to judge who can read along?				
	do you find it difficult to determine, how the safety of your private data is guaranteed by the media provider?				
	do you find it difficult to determine, who has access to your data?				
	do you (intentionally or unintentionally) share your own private information (e.g., name or ad- dress)?	- 🗆			
	do you (intentionally or unintentionally) share someone else's private information?				



## 4 Media concept and equipment at school

17	Now we are interested in your opinion of the availability of a media concept as we		-	•	our school,	,
17a	Does your school use a specific media use of digital media (e.g. equipment, so cation and literacy?	-		•		
	Yes, following the [please include nation from the country of the study]	nal or regio	onal media	literacy cond	ept	
	Yes, following the [please include a sec acy curriculum from the country of the stud		nal or regio	nal media lite	_	<b>_</b>
	Yes, namely:					
	Not in place					
17b	How often do you use digital media for t Please think about your typical school v		ng purpose	es? 		
		Every day o	At least ince a week	At least once a month	Less than once a month	Ne- ver
	At school while teaching					
	At school for other school purposes					
	Out of school for school-related purposes					
	Out of school for non-school-related purpose					
17c	To what extent do you agree with the formedia in teaching at your school? Please select one response per row.	ollowing st	tatements	about the us	e of digital	
		Strongl disagre	1 11820	ree Agree	Stro agr	
	The use of digital media in the class- room has priority.					
	The IT equipment (e.g., computers) of my school is sufficient.					]
	The computers at our school are up to date.					]
	There is sufficient access to digital learning materials (e.g., to learning programmes or apps) at my school.				С	3
	My school has good internet access (e.g., fast and robust).					<b>.</b>



	There is enough time to prepare lessons in which digital media are used.					
	There are enough opportunities for me to acquire skills in the use of digital media.					
	There is sufficient technical support for the maintenance of IT equipment.					
	There is sufficient support regarding the use of digital media for teaching and learning.					
	There are enough computer workplaces at school for teachers.			I		
	The IT equipment is in line with the school's pedagogical goals.					
18	Now we would like to know whether and to how to deal proficiently with (digital) info about whether you personally address the but rather about how important these topic	rmation of	on the top aspects,	oic of hea e.g., in th	lth. It is	less
	At our school, the pupils learn					
	At our school, the pupils learn		Strongly disagree	Disagree	Agree	Strongly agree
	At our school, the pupils learn  basic technical skills to search the inter health-related information (e.g., use a county puter keyboard, mouse, or links on web.)	om-	Strongly disagree	Disagree	Agree	Strongly agree
	basic technical skills to search the inter health-related information (e.g., use a c	com- sites). the inter- nedia) in	disagree			agree
	<ul> <li>basic technical skills to search the interhealth-related information (e.g., use a conjugate of the puter keyboard, mouse, or links on web to create a health-related message on the net (e.g., in an e-mail, forum or social management)</li> </ul>	com- sites). the inter- nedia) in nd ex- y that	disagree			agree
	<ul> <li>basic technical skills to search the interhealth-related information (e.g., use a conjugate puter keyboard, mouse, or links on web</li> <li>to create a health-related message on the net (e.g., in an e-mail, forum or social mouse) a way that other people understant actly what is meant.</li> <li>to navigate on the internet in such a way they can adequately search for and find related information (e.g., navigate between</li> </ul>	com- sites). The inter- nedia) in nd ex- y that I health- een dif- i and ten-	disagree			agree
	<ul> <li>basic technical skills to search the interhealth-related information (e.g., use a cputer keyboard, mouse, or links on web</li> <li>to create a health-related message on the net (e.g., in an e-mail, forum or social mesuch a way that other people understan actly what is meant.</li> <li>to navigate on the internet in such a way they can adequately search for and find related information (e.g., navigate between twebsites).</li> <li>how to protect their health-related data that of others on the internet (e.g., uninterional or intentional sharing and passing</li> </ul>	com- sites). The inter- nedia) in nd ex-  y that I health- een dif- I and ten- g on pri- Ith is- (e.g.,	disagree			agree



	related information from the internet (e.g., how to determine whether the information pursues commercial interests).	/ _			
6 He	alth Literacy				
19	It is not always easy to get understandable, reli health-related topics. With the following question tasks related to handling health information are m On a scale from very easy to very difficult, how easy	is we wou nore or les	ıld like to f ss easy or d	ind out v difficult.	
		Very difficult	Difficult	Easy	Very easy
	<ul> <li>to find out where to get professional help when you are ill? (e.g., doctor, nurse, phar- macist, psychologist)</li> </ul>				
	understand information about what to do in a medical emergency?				
	to judge the advantages and disadvantages of different treatment options?				
	to act on advice from your doctor or pharmacist?				
	<ul> <li>to find information on how to handle mental health problems? (e.g., stress, depression or anxiety)</li> </ul>				
	to understand information about recom- mended health screenings or examinations?				
	to judge if information on unhealthy habits, such as smoking, low physical activity or drinking too much alcohol, are reliable?				
	to decide how you can protect yourself from illness using information from the mass media? (e.g., Newspapers, TV or Internet)				
	to find information on healthy lifestyles such as physical exercise, healthy food or nutrition?				
	to understand advice concerning your health from family or friends?				
	to judge how your housing conditions may affect your health and well-being?				
	to make decisions to improve your health and well-being?				



## 7 Managing health information competently

20	Imagine that teaching competent use of digital mation takes on a higher priority at your school (class).  When we talk about competent usage of healthability to search for and find information, but also to life. This involves both digital information (e.g. we information (e.g. brochures, newspapers, radio) or	(e.g., in cl related in to evaluate ebsites, so	ass, but a formation, e it and use ocial medi	lso outsio we mear e it in ever	the yday
20a	If the teaching of competent use of digital and an were addressed in the classroom, I think that	alogue he	alth-relate	ed informa	ation
	,	Strongly disagree	Disagree	Agree	Strongly Agree
	it helps pupils to develop a healthy lifestyle.				
	it improves pupils' ability to assess the reliability of health-related information.				
	this contributes to preparing pupils for an increasingly digital life.				
	the topic of health can be well integrated within the context of media literacy in schools.				
20b	To what extent do you agree with the following statital and analogue health-related information at yo			eaching o	f dig-
		Strongly disagree	Disagree	Agree	Strongly Agree
	It is personally very important to me to teach pupils in school how to competently use health-related information.				
	I think schools should do more to teach pupils to be competent with health-related information.				
	I think it is important that the learning conditions at my school are designed to allow for the promotion of competent use of health-related information.				
	I think it is important that the teaching of competent use of health-related information is a mandatory part of the curriculum (e.g., as part of media literacy education).				
20c	Please rate the following statements.				
		Strongly disagree	Disagree	Agree	Strongly Agree
	I am not sure if I have enough knowledge to teach pupils skills of competent use of health-related information.				
	I am not sure if I have the methodological and didactic skills to teach pupils how to use health-related information competently.				



	I am not sure if I get enough support from the colleagues to teach pupils how to use health-relate information competently.				
	I am not sure how to integrate the teaching of competent use of health-related information into the existing curriculum.				
20d	Please rate the following statements.				
		Strongly disagree	Disagree	Agree	Strongly Agree
	I intend to teach pupils in the classroom how competently to use health-related information.				
	I intend to support the design of the teaching and learning conditions in my school to enable the teaching of skills in using health-related information of pupils.				
	I intend to support my colleagues in their efforts to promote using health-related information competently (e.g., in the classroom).				
8 Sch	ool health promotion				
21	In this section, we would like to know to what ext your school.  Please mark the response option which expresse At our school				e at
	In this section, we would like to know to what ext your school. Please mark the response option which expresse				e at  Strongly Agree
	In this section, we would like to know to what ext your school. Please mark the response option which expresse	es your op	nion the be	est.	Strongly
	In this section, we would like to know to what ext your school.  Please mark the response option which expresse At our school  health promotion is a topic in our school de-	Strongly disagree	nion the be	Agree	Strongly Agree
	In this section, we would like to know to what extyour school.  Please mark the response option which expresse  At our school  health promotion is a topic in our school development group.  health promotion and health goals are anchored in the mission statement and pro-	Strongly disagree	nion the be	Agree	Strongly Agree
	In this section, we would like to know to what extyour school.  Please mark the response option which expresse  At our school  health promotion is a topic in our school development group.  health promotion and health goals are anchored in the mission statement and programme. health plays an important role in the organisa-	Strongly disagree	Disagree	Agree	Strongly Agree
	In this section, we would like to know to what extyour school.  Please mark the response option which expresse At our school  health promotion is a topic in our school development group.  health promotion and health goals are anchored in the mission statement and programme. health plays an important role in the organisation of lessons.  maintaining and promoting the health of all members plays an important role (e.g., pupils,	Strongly disagree	Disagree	Agree	Strongly Agree



	teachers are supported in dealing with st ful situations in a constructive way.	ress-			
	we collaborate with external institutions implementation of health-promoting activi				
	teachers are made aware of health-relat topics such as exercise or self-manageme				
	further training on health-related topics toplace regularly.	akes I			
	legal guardians (e.g. parents) are involve the planning and design of health promotion tivities.				
	aspects of health promotion are address various school subjects.	sed in			
9 Hea	alth action and behaviour				
22 22a	This section is about your everyday health your lifestyle and climate and environmen any time, please tick the answer that is mo	t-related be st likely to a	ehaviors. If yapply.	•	
	Please indicate to what extent the following aspects apply to you.				
		Strongly disagree	Disagree	Agree	Strongly Ag- ree
	I make sure I get enough physical activity and sports.				
	I regularly make use of medical check- ups (e.g. check-ups, screenings).				
	I make sure I get enough sleep.				
	I pay attention to a balanced and healthy nutrition.				
	Tiddition.				ш
	I use tobacco products. (invert)				
	I use tobacco products. (invert)  I pay attention to signs of possible health problems (e.g., taking blood pressure, pulse, observing moles, palpating the				
	I use tobacco products. (invert)  I pay attention to signs of possible health problems (e.g., taking blood pressure, pulse, observing moles, palpating the breast).  I have more than two alcoholic drinks a				



22b	Now we would like to	know how you assess clim	ate change			
					es	No
	Do you believe clima					
		climate change and other		<sup>ntal</sup> [	7	
	and climatic changes	s are caused by human beh	aviour?	_	<del>-</del>	<u>-</u>
22c	-	ow strong are the effects th				
	- '	e.g., climate change, chang	-			sub-
		stances such as plastics) c	<b>-</b>		ealth?	
	No effects	Low effects	Moderate ef	fects	Strong	effects
						]
22d	mental behaviour.	vould like to learn somethi			and env	viron-
			Strongly	Disagree	Agree	Strongly
			disagree	Disagled	A8100	Agree
	In everyday life, I prefrather than by car.	fer to travel by bike or on foo	ot 🗆			
	I prefer travelling by t	train instead of driving by ca	ar 🗆			
	or flying.					
	My diet is mainly mea	at and fish free.				
	In everyday life, I try t	o save water and electricity	′.			
	I participate in climat	te and environmental protec	>-			
	tion activities in my	city (e.g., waste collectio	n 🛚			
	campaigns, demons					
	I am involved in an or	ganisation that promotes cl	i			
	mate and environme	ntal protection.		Ш	Ц	Ц
	I talk to other people	about climate and enviror	)			
	mental protection.		Ц	Ш	Ц	Ц
<b>0 Ph</b> 23	ysical and mental I	nealth status sted in your health and gen	eral well-be	ing.		
23a	How is your health in	general?				
<b>2</b> 0a	Very good	Good Fair		Bad	\/4	ery bad
					•	П
23b	=	c disease or a long-lasting I long-term illnesses that re or heart diseases.	•		ent and r	noni-
	\	⁄es		No		
tem 2	3c: Filter question, ap	pears only if "Yes" is specifi	ied for item .	23b.		
23c	day life?	ou impaired by your chronic nents that last or are expec				very-



	Strongly impaired						
	Moderately impaired						
	Not at all impaired						
	Don´t know						
23d	How often did it happen in the		-	-	-l-a		
	Please consider your working h	iours exc	cluding not	iday period	us.		Very
			Very often	Often	Sometimes	Rarely	rarely/ never
	showed up at work despite be sick?	peing					
	worked despite heavy symptosickness (e.g. pain, chills, feve						
	worked the full workday des being sick?	pite					
	dragged yourself to work eventhough you were sick?	en					
23e	The following statements cond Please indicate for each of the been feeling over the last two v Over the last two weeks	five stat	_	_			
		At no time	Some of the time	Less than half of the time	More than half of the time	Most of the time	All of the time
	I have felt cheerful and in good spirits.						
	I have felt calm and relaxed.						
	I have felt active and vigorous.						
	I woke up feeling fresh and rested.						
	My daily life has been filled with things that interest me.						
24	You did it! Thank you very muc	h for you	r narticinat	rion			

GLOBHL: School Educators | DHL-EQ: Questionnaire and Scale Documentation



### **Scale documentation**

Digital health literacy of school educators School educators survey questionnaire (DHL-EQ)



## Overview of topics: scales and item count

Areas	Scales	Item count	Total
	Sex	1	
	Gender identity	1	
	Age	1	
	Country of birth	1	
Cooledomoorranhia	Country of birth father	1	
Sociodemographic	Country of birth mother	1	
information and	Federal State	1	13
school characteris-	Position	1	
tic	Employment	1	
	Working hours	1	
	Type of school	1	
	Number of students	1	
	Social hotspot	1	
Health-related infor-	Surrogate health information seeking (TG)	3	
mation-seeking be-	Surrogate health information seeking (M)	7	25
haviour	Online sources	15	20
Havioui	Operational skills	3	
	Navigation skills	3	
	Information searching	3	
Digital health liter-	_	3	23
acy	Adding self-generated content	3	23
	Evaluating reliability		
	Determining relevance	3	
N4 1'	Protecting privacy	5	
Media concept and	Media concept	1	4.0
equipment at	Frequency of digital media use	4	16
school	Evaluation of the school's IT equipment	11	
School-based digital	School-based digital health literacy	7	7
health literacy		,	,
Health literacy	Health Literacy	12	12
Managing health in-	Teaching beliefs	4	
formation compe-	Teaching attitudes	4	15
tently	Teaching competencies	4	13
teritty	Teaching intentions	3	
School health pro-	School health promotion	12	12
motion		12	12
	Health action	9	
Health action and	Climate change	2	10
behaviour	Climate change and health	1	19
	Climate and environmental action	7	
	General health	1	
	Chronic disease	1	
Physical and mental	Impairment by health problems	1	12
health status	Presentism	4	'-
	Well-being	5	
Total:	THOM SOME	<u> </u>	154
Total.			154



## 1 Sociodemografic information and school characteristic

### **1.1 Sex**

Label	Item
Gender	Please indicate your biological sex.
Response opti-	[1] Male, [2] Female, [3] Intergender
ons:	
Source:	Self-developed
	Self-developed

## 1.2 Gender identity

Label	Item
GenderIdent (gender identity)	Please indicate how much you feel like a woman/man.
Response opti-	6-step response options with end poles [1] woman to [6] man
ons:	
Source:	Präventionsradar, IFT Nord, unpublished item based on:
	Döring, N. (2013). Zur Operationalisierung von Geschlecht im Fragebogen:
	Probleme und Lösungsansätze aus Sicht von Mess-, Umfrage-, Gender- und
	Queer-Theorie. <i>Gender</i> , 02/2013, 94-113.
Remarks/ Adap-	Position of the end poles swapped. (i.e., left pole=female, right pole=male)
taions:	

## 1.3 Age

Label	Item
Age	How old are you?
Response opti-	I am [free text, numerical value] years old.
ons:	
Source:	Self-developed Self-developed

## 1.4 Country of birth

Label	Item
Mig1 (migration)	In what country where you born?
Response opti-	[1] Germany [please insert the country of the study here]
ons:	[2] Other country, namely [free text] [Coding: Mig1_t],
	[3] No answer
Source:	Self-developed based on: §4 MighEV:
	Federal Ministry of Justice (n.D.), Verordnung zur Erhebung der Merkmale



des Migrationshintergrundes (Migrationshintergrund-Erhebungsverordnung
- MighEV). Online available at: https://tinyurl.com/555kza9a. (last access:
25 July 2023). [please use your own source when appropriate]

## 1.5 Country of birth father

Label	Item
Mig2 (migration)	In what country was your father born?
Response opti-	[1] Germany [please insert the country of the study here]
ons:	[2] Other country, namely [free text] [Coding: Mig2_t]
	[3] No answer
Source:	Self-developed based on §4 MighEV:
	• Federal Ministry of Justice (n.d.). Verordnung zur Erhebung der Merkmale des Migrationshintergrundes (Migrationshintergrund-Erhebungsverordnung - MigheV). Online available at: https://tinyurl.com/555kza9a. (last access: 25 July 2023). [please use your own source when appropriate]

## 1.6 Country of birth mother

Label	Item
Mig3 (migration)	In what country was your mother born?
Response opti-	[[1] Germany [please insert the country of the study here]
ons:	[2] Other country, namely [free text] [Coding: Mig2_t]
	[3] No answer
Source:	Self-developed based on §4 MighEV:
	• Federal Ministry of Justice (n.d.). Verordnung zur Erhebung der Merkmale des Migrationshintergrundes (Migrationshintergrund-Erhebungsverordnung - MigheV). Online available at: https://tinyurl.com/555kza9a. (last access: 25 July 2023). [please use your own source when appropriate]

### 1.7 Federal state

Label	Item
FS (federal state)	Please indicate in which federal state you work. [please adapt to the country of the study]
Response opti-	[please adapt to the country of the study]
ons:	
Source:	Self-developed

### 1.8 Position



Pos (position)	What is your current position at your school?
Response opti-	[1] School principal
ons:	[2] Member of the school leadership board
	[3 Teacher (without previously mentioned leadership function)
	[4] Other pedagogical staff (e.g., school social worker, school psychologist, etc.)
	[please adapt to country of study]
Source:	Self-developed based on:
	Dadaczynski, K., Okan, O., & Messer, M. (2021). COVID-19 Health Literacy School Principals Survey (COVID-HL: School Principal). Questionnaire and Scale Documentation Version 1. Bielefeld/Fulda: Bielefeld University, Interdisciplinary Centre for Health Literacy Research and Fulda University of Applied Sciences, Public Health Centre.
Remarks/ Adap- tations:	Response option 3 and 4 were added

## 1.9 Employment

Label	Item
EP (employment)	What is your current employment status?
Response options:	[1] Full-time, [2] Part-time, contractual weekly working hours (hours per week): [free text] [Coding: EP_t]
Source:	Self-developed based on:
	• Dadaczynski, K., Okan, O., & Messer, M. (2021). COVID-19 Health Literacy School Principals Survey (COVID-HL: School Principal). Questionnaire and Scale Documentation Version 1. Bielefeld/Fulda: Bielefeld University, Interdisciplinary Centre for Health Literacy Research and Fulda University of Applied Sciences, Public Health Centre.

## 1.10 Working hours

Label	Item
WH (working hours)	How many hours do you currently work on average per week, including overtime? Please also include times outside of regular school hours, e.g., weekends and
	evenings.
Response options:	Number of working hours (incl. overtime) [free text, numerical] [Coding: WH_t]
Source:	Self-developed based on:
	Dadaczynski, K., Okan, O., & Messer, M. (2021). COVID-19 Health Literacy Schulleitungsstudie (COVID-HL: Schulleitung). Fragebogen und
	Skalendokumentation Version 1. Bielefeld/Fulda: Universität Bielefeld,
	Interdisziplinäres Zentrum für Gesundheitskompetenz und Public Health
	Zentrum Fulda (PHZF) an der Hochschule Fulda.

## 1.11 Type of school



Label	Item
Stype (school type)	Please indicate the type of school in which you work mainly.  Instruction: If you are employed in more than one type of school, please indicate the type of school in which you are mainly employed.
Response options:	[please adapt to the country of the study by including primary and secondary schools]
Source:	<ul> <li>Self-developed based on:</li> <li>Schwanenberg, J., Klein, E. D., &amp; Walpuski, M. (2018). Wie erfolgreich fühlen sich Schulleitungen und welche Unterstützungsbedürfnisse haben sie? Ergebnisse aus dem Projekt Schulleitungsmonitor. SHIP Working Paper Reihe, No. 03. Essen: Universität Duisburg-Essen. DOI: 10.17185/duepublico/47202.</li> </ul>

### 1.12 Number of students

Label	Item
NS (number of stu-	How many students attend your school?
dents)	Instruction: Please indicate the number of students

Response opti-	Free text (numerical vaue) [Coding: NS_n]
ons:	
Source:	Dadaczynski, K., Okan, O., & Messer, M. (2021). COVID-19 Health Literacy Schulleitungsstudie (COVID-HL: Schulleitung). Fragebogen und Skalendokumentation Version 1. Bielefeld/Fulda: Universität Bielefeld, Interdisziplinäres Zentrum für Gesundheitskompetenz und Public Health Zentrum Fulda (PHZF) an der Hochschule Fulda.

### 1.13 Social hotspot

Label	Item
SH (social hotspot)	Is your school in a social hotspot?
Response opti-	[1] Yes, [2] No, [3] Don't know
ons:	
Source:	• Pietsch, M., & Tulowitzki, P. & Cramer, C. (2022). Principals between exploitation and exploration: Results of a nationwide study on ambidexterity of school leaders. <i>Educ. Manag. Adm. &amp; Leadersh.</i> , 50(4), 574-592.

## 2 Health-related information seeking behaviour

## 2.1 Surrogate health information seeking (target group)

Label	Item
ISA (information search addressees)	For whom and how often have you searched for health-related information on the internet in the last 12 months? (filter question for question 2.2)



Label	Item
ISA1	For myself
ISA2	For others (in a private context)
ISA3	For others (in the context of school) (trigger filter if <6)

Response opti-	[1] Very frequently, [2] Frequently, [3] Occasionally, [4] Rarely, [5] Very rarely, [6]
ons:	Never
Source:	Self-developed based on:
	• Reifegerste, D., Bachl, M., & Baumann, E. (2017). Surrogate health information seeking in Europe: Influence of source type and social network variables. <i>Int. J. Med. Inform.</i> , 103, 7-14.

## 2.2 Surrogate health information seeking (motives)

Label	Item
ISM (information se-	Why and how often have you searched for health-related information on the in-
arch motives)	ternet in the last 12 months for school matters?

Label	Item
ISM1	To better understand colleagues' health and resulting needs.
ISM2	To better understand pupils' health and resulting needs.
ISM3	To feel more confident in dealing with pupils who are ill.
ISM4	To address prevention and health promotion topics in class.
ISM5	To organise a project/ project days on health topics.
ISM6	To initiate prevention and health promotion activities among the staff.
ISM7	Other, namely: (free text) [Coding: ISM_t]

Response opti-	[1] Very frequently, [2] Frequently, [3] Occasionally, [4] Rarely, [5] Very rarely, [6]
ons:	Never
Source:	Self-developed based on:
	• Reifegerste, D., Bachl, M., & Baumann, E. (2017). Surrogate health information seeking in Europe: Influence of source type and social network variables. <i>Int. J. Med. Inform.</i> , 103, 7-14.
Remarks/ adap- tations:	• Filter question, if ISA "For others (in the context of school" < 6 ("never") was selected.

### 2.3 Online sources

Label	Item
	How often do you use the following internet-based sources and offers?
SR (sources)	<b>Instruction</b> : This refers to any kind of use, both in a private context and in a school context.



Label	Item
SR1	Health Information at Wikipedia and similar online-encyclopaedias
SR2	Websites of health insurance companies
SR3	Health portals [e.g., please insert a country specific example]
SR4	Website from doctors, hospitals, rehabilitation, or care facilities
SR5	Guidebook-communities with health-related content [e.g., please insert a country specific example]
SR6	Online/Internet pharmacies
SR7	Health forums and communities specifically on health and disease topics
SR8	Comparison portals to search for doctors, hospitals and nursing homes [e.g., please insert a country specific example]
SR9	Social media with health-related content (e.g., Facebook, Instagram, Twitter, YouTube, TikTok)
SR10	Blogs on health topics
SR11	Websites of non-profit health organisations, independent patient or self-help organisations
SR12	Digital devices for tracking health-related indicators (e.g., blood glucose meter, pedometer, fitness tracker)
SR13	Health apps on your smartphone
SR14	Messenger-Services (e.g., WhatsApp, Signal, Threema) [please adapt to the country of the study]
SR15	Tools for digital interaction with healthcare providers (e.g., video consultation or written communication via email)
Response options:	[1] Every day, [2] At least 1x per week [3] At least 1x per month, [4] Less than 1x per month, [5] Never
Source:	Marstedt, G. (2018). Das Internet: Auch Ihr Ratgeber für Gesundheitsfragen? Bevölkerungsumfrage zur Suche von Gesundheitsinformationen im Internet und zur Reaktion der Ärzte. Gütersloh: Bertelsmann.
	• Schaeffer, D., Berens, EM., Gille, S., Griese, L., Klinger, J., de Sombre, S.,

Response opti-	[1] Every day, [2] At least 1x per week [3] At least 1x per month, [4] Less than 1x
ons:	per month, [5] Never
Source:	<ul> <li>Marstedt, G. (2018). Das Internet: Auch Ihr Ratgeber für Gesundheitsfragen?</li> <li>Bevölkerungsumfrage zur Suche von Gesundheitsinformationen im Internet und zur Reaktion der Ärzte. Gütersloh: Bertelsmann.</li> </ul>
	<ul> <li>Schaeffer, D., Berens, EM., Gille, S., Griese, L., Klinger, J., de Sombre, S., Vogt, D., &amp; Hurrelmann, K. (2021). Gesundheitskompetenz der Bevölkerung in Deutschland – vor und während der Corona Pandemie: Ergebnisse des HLS-GER 2. Bielefeld: Interdisziplinäres Zentrum für Gesundheitskompetenzforschung (IZGK), Universität Bielefeld. https://doi.org/10.4119/unibi/2950305.</li> </ul>
Remarks/ adaptaions:	<ul> <li>Response option adapted (original: [1] Daily, [2] Weekly, [3] Less then weekly, [4] Never)</li> <li>Instruction and wording of single items has been adapted</li> </ul>

## 3 Digital health literacy

## 3.1 Subscale: Operational skills

Label	Item
OS (operational skills)	When you search the Internet for health-related information, how easy or difficult is it for you to
	is it for you to



Label	Item
OS1	use the keyboard of a computer, tablet or smartphone (e.g., to type words)?
OS2	use the mouse (e.g., to put the cursor in the right field or to click)?
OS3	use the buttons or links and hyperlinks on websites?

	141.V 1/10. It 101.D.(0. It 101.E 141.V
Response opti-	[1] Very difficult, [2] Difficult, [3] Easy, [4] Very easy
ons: Source:	Van Der Vaart, R., & Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. <i>J. Med. Internet Res.</i> , 19(1), e6709.
	Dadaczynski, K., Okan, O., Messer, M., & Rathmann, K. (2020). Digitale Gesundheitskompetenz von Studierenden in Deutschland [Digital health literacy of university students in Germany. Results of a nationwide online study]. Ergebnisse einer bundesweiten Online-Befragung. Online available at: https://fuldok.hs-fulda.de/opus4/843. (last access: 07 August 2023).
Remarks/ adap- taions:	The terms "tablets and smartphone" have been added in item 1.
Psychometric quality:	<ul> <li>Validity: Principal component analysis was performed to determine content validity. Correlation analyses were used to determine the construct validity.</li> <li>Reliability: α=0.57 to 0.68 (protecting privacy, T1, T2) to α=0.89 to 0.91 (determining relevance, T1, T2)</li> </ul>
Subscales:	<ul> <li>Operational skills</li> <li>Navigation skills</li> <li>Information searching</li> <li>Evaluating reliability</li> <li>Determining relevance</li> <li>Adding content</li> <li>Protecting privacy</li> </ul>
Analysis:	<ul> <li>Each item was scored on a 4-point scale, with response options ranging from "very easy" to "very difficult" and from "never" to "often." Scores were reversed, so that a higher score represented a higher level of digital health literacy.</li> <li>Subscores are calculated for each skill by using the mean of the 3 items on every skill.</li> <li>A total score is calculated by using the total mean, for which answers on at least 18 items were necessary.</li> </ul>

## 3.2 Subscale: Navigation skills

Label	Item
NAV (navigation)	When you search the Internet for health-related information, how often does it
inavigation)	happen that



NAV1	you lose track of where you are on a website or the Internet?
NAV2	you do not know how to return to a previous page?
NAV3	you click on something and get to see something different than you expected?

Response options:	[4] Never, [3] Rarely, [2] Sometimes, [1] Often
Source:	• Van Der Vaart, R., & Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. <i>J. Med. Internet Res.</i> , 19(1), e6709.
	<ul> <li>Dadaczynski, K., Okan, O., Messer, M., &amp; Rathmann, K. (2020). Digitale Gesundheitskompetenz von Studierenden in Deutschland [Digital health literacy of university students in Germany. Results of a nationwide online study]. Ergebnisse einer bundesweiten Online-Befragung. Online available at: https://fuldok.hs-fulda.de/opus4/843. (last access: 07 August 2023).</li> </ul>
Psychometric quality:	• see 3.1
Subscales:	• see 3.1
Analysis:	• see 3.1

## 3.3 Subscale: Information searching

Label	Instruction
IS (information se-	When you search the Internet for health-related information, how easy or difficult
arch)	is it for you to

Label	Item
IS1	make a choice from all the information you find?
IS2	use the proper words or search query to find the information you are looking for?
IS3	find the exact information you are looking for?

Response options:	[1] Very difficult, [2] Difficult, [3] Easy, [4] Very easy
Source:	• Van Der Vaart, R., & Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. <i>J. Med. Internet Res.</i> , 19(1), e6709.
	<ul> <li>Dadaczynski, K., Okan, O., Messer, M., &amp; Rathmann, K. (2020). Digitale Gesundheitskompetenz von Studierenden in Deutschland [Digital health literacy of university students in Germany. Results of a nationwide online study]. Ergebnisse einer bundesweiten Online-Befragung. Online available at: https://fuldok.hs-fulda.de/opus4/843. (last access: 07 August 2023).</li> </ul>
Psychometric quality:	• see 3.1
Subscales:	• see 3.1



Analysis:
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## 3.4 Subscale: Adding self-generated content

Label	Instruction
SC (self-generated content)	When typing a health-related message (e.g., to your doctor, on a forum, or on social media such as Facebook or Twitter), how easy or difficult is it for you to <b>Instruction</b> : If you do not write, publish, or comment on health-related messages or postings on the internet (e.g., email, messenger services, forums, or social media), please leave these questions unanswered.

Label	Item
SC1	clearly formulate your question or health-related worry?
SC2	express your opinion, thoughts, or feelings in writing?
SC3	write your message as such, for people to understand exactly what you mean?

Response options:	[1] Very difficult, [2] Difficult, [3] Easy, [4] Very easy
Source:	• Van Der Vaart, R., & Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. <i>J. Med. Internet Res.</i> , 19(1), e6709.
	Dadaczynski, K., Okan, O., Messer, M., & Rathmann, K. (2020). Digitale Gesundheitskompetenz von Studierenden in Deutschland [Digital health literacy of university students in Germany. Results of a nationwide online study]. Ergebnisse einer bundesweiten Online-Befragung. Online available at: https://fuldok.hs-fulda.de/opus4/843. (last access: 07 August 2023).
Remarks/ adap- tations:	Additions were made to the question and the instruction (e.g. within the brackets)
Psychometric quality:	• see 3.1
Subscales:	• see 3.1
Analysis:	• see 3.1

## 3.5 Subscale: Evaluating reliability

Label	Instruction
ER (evaluating reliabil-	When you search the Internet for health-related information, how easy or difficult
ity)	is it for you to

Label	Item
ER1	decide whether the information is reliable or not?
ER2	decide whether the information is written with commercial interests (e.g., by people trying to sell a product)?



	ER3	check different websites to see whether they provide the same information?	
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Response opti-	[1] Very difficult, [2] Difficult, [3] Easy, [4] Very easy
ons:	
Source:	• Van Der Vaart, R., & Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. <i>J. Med. Internet Res.</i> , 19(1), e6709.
	<ul> <li>Dadaczynski, K., Okan, O., Messer, M., &amp; Rathmann, K. (2020). Digitale Gesundheitskompetenz von Studierenden in Deutschland. Ergebnisse einer bundesweiten Online-Befragung [Digital health literacy of university students in Germany. Results of a nationwide online study]. Online available at: https://fuldok.hs-fulda.de/opus4/843. (last access: 07 August 2023).</li> </ul>
Psychometric quality:	• See 3.1
Subscales:	• See 3.1
Analysis:	• See 3.1

## 3.6 Subscale: Determining relevance

Label	Instruction
DR (determining rele-	When you search the Internet for health-related information, how easy or difficult
vance)	is it for you to

Label	Item
DR1	use the information you found to make decisions about your health (e.g., on nutrition, medication or to decide whether to ask a doctor's opinion)?
DR2	apply the information you found in your daily life?
DR3	decide if the information you found is applicable to you?

Response options:	[1] Very difficult, [2] Difficult, [3] Easy, [4] Very easy
Source:	• Van Der Vaart, R., & Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. <i>J. Med. Internet Res.</i> , 19(1), e6709.
	Übersetze Form nach: Dadaczynski, K., Okan, O., Messer, M., & Rathmann, K. (2020). Digitale Gesundheitskompetenz von Studierenden in Deutschland. Ergebnisse einer bundesweiten Online-Befragung [Digital health literacy of university students in Germany. Results of a nationwide online study]. Online available at: https://fuldok.hs-fulda.de/opus4/843. (last access: 07 August 2023).
Psychometric quality:	• See 3.1
Subscales:	• See 3.1
Analysis:	• See 3.1



## 3.7 Subscale: Protecting privacy

Label	Instruction
PP (protecting privacy)	When you post a message on a public forum or social media, how often  Instruction: If you do not write, publish, or comment on messages or postings about health in public forums or social media, please leave these questions unanswered.

Label	Item
PP1	do you find it difficult to judge who can read along?
PP2	do you find it difficult to determine, how the safety of your private data is guaranteed by the media provider?
PP3	do you find it difficult to determine, who has access to your data?
PP4	do you (intentionally or unintentionally) share your own private information (e.g., name or address)?
PP5	do you (intentionally or unintentionally) share some else's private information?

Response opti-	[1] Often, [2] Sometimes, [3] Rarely [4] Never
ons: Source:	<ul> <li>Van Der Vaart, R., &amp; Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. J. Med. Internet Res., 19(1), e6709.</li> <li>Dadaczynski, K., Okan, O., Messer, M., &amp; Rathmann, K. (2020). Digitale Gesundheitskompetenz von Studierenden in Deutschland. Ergebnisse einer bundesweiten Online-Befragung [Digital health literacy of university students in Germany. Results of a nationwide online study]. Online available at: https://fuldok.hs-fulda.de/opus4/843. (last access: 07 August 2023).</li> </ul>
Remarks/adapti- ons:	PP2 and PP3 were added as new items (self-developed)
Psychometric quality:	• See 3.1
Subscales:	• See 3.1
Analysis:	• See 3.1

## 4 Media concept and equipment at school

## 4.1 Media concept

Label	Item
MS (media strategy)	Does your school use a specific media concept and action plan that regulates the use of digital media (e.g. equipment, software) as well as the teaching of digital education and literacy?



Response opti-	[1] Yes, following the [please include national or regional media literacy con-
ons:	cept from the country of the study]
	[2] Yes, following the [please include a second national or regional media liter-
	acy curriculum from the country of the study]
	[3] Yes, namely: [free text] [Coding: MS_t]
	[4] Not in place
Source:	Dadaczynski, K., Okan, O., & Messer, M. (2021). COVID-19 Health Literacy
	School Principals Survey (COVID-HL: School Principal). Questionnaire and
	Scale Documentation Version 1. Bielefeld/Fulda: Bielefeld University,
	Interdisciplinary Centre for Health Literacy Research and Fulda University of
	Applied Sciences, Public Health Centre.

## 4.2 Frequency of digital media use

Label	Instruction
UDM (use of digital	How often do you use digital media for the following purposes?
media)	Instruction: Please think about your typical school week.

Label	Item
UDM1	At school while teaching
UDM2	At school for other school purposes
UDM3	Out of school for school related purposes
UDM4	Out of school for non-school related purpose

Response options:	[1] Every day, [2] At least once a week, [3] At least once a month, [4] Less than once a month, [5] Never
Source:	Vennemann, M., Eickelmann, B., Labusch, A., & Drossel, K. (2021). ICILS     2018 Deutschland. Dokumentation der Erhebungsinstrumente der zweiten     Computer and Information Literacy Study. Münster; New York: Waxmann.
Remarks/ adaptions:	<ul> <li>Response options were adapted: Numbers were given as a numeric value and for answer option [2] and [3] the part "but not every day/week" was omitted.</li> </ul>

## 4.3 Evaluation of the school's IT equipment

Label	Instruction
IT (information technology)	To what extent do you agree with the following statements about the use of digital media in teaching at your school?  Instruction: Please select one response per row.

Label	Item
IT1	The use of digital media in the classroom has priority.
IT2	The IT equipment (e.g., computers) of my school is sufficient.
IT3	The computers at our school are up to date.
IT4	There is sufficient access to digital learning materials (e.g., to learning programmes or apps) at my school.
IT5	My school has a good internet access (e.g., fast and robust).



IT6	There is enough time to prepare lessons in which digital media are used.
IT7	There are enough opportunities for me to acquire skills in the use of digital media.
IT8	There is sufficient technical support for the maintenance of IT equipment.
IT9	There is sufficient support regarding the use of digital media for teaching and learning.
IT10	There are enough computer workplaces at school for teachers.
IT11	The IT equipment is in line with the school's pedagogical goals.

Response opti-	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
ons:	
Source:	Vennemann, M., Eickelmann, B., Labusch, A., & Drossel, K. (2021). ICILS     2018 Deutschland. Dokumentation der Erhebungsinstrumente der zweiten     Computer and Information Literacy Study. Münster; New York: Waxmann.

# 5 School-based digital health literacy

Label	Instruction
SDHL (school based digital health literacy)	Now we would like to know whether and to what extent pupils at your school learn how to deal proficiently with (digital) information on the topic of health. It is less about whether you personally address the following aspects, e.g., in the classroom, but rather of how important these topics are at your school.  At our school, the pupils learn

Label	Item
SDHL1	basic technical skills to search the internet for health-related information (e.g., use a computer keyboard, mouse, or links on websites).
SDHL2	to create a health-related message on the internet (e.g., in an e-mail, forum or social media) in such a way that other people understand exactly what is meant.
SDHL3	to navigate on the internet in such a way that they can adequately search for and find health-related information (e.g., navigate between different websites).
SDHL4	how to protect their health-related data and that of others on the internet (e.g., unintentional or intentional sharing and passing on private information).
SDHL5	how to find information about their health issues on the internet in an effective way (e.g., choosing proper search terms, making a selection from all the information).
SDHL6	how they can use and apply the health-related information they find on the internet in their everyday lives.
SDHL7	how to critically evaluate the quality of health-related information from the inter-net (e.g., how to determine whether the information pursues commercial interests).

Response opti-	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
ons:	
Source:	Self-developed based on the dimensions of the Digital Health Literacy Instrument (see section 3)



## 6 Health literacy

Label	Instruction
HL (health literacy)	It is not always easy to get understandable, reliable, and useful information on health-related topics. With the following questions we would like to find out which tasks related to handling health information are more or less easy or difficult.  On a scale from very easy to very difficult, how easy would you say it is

Label	Item
HL1	to find out where to get professional help when you are ill? (e.g., doctor, nurse, pharmacist, psychologist)
HL2	to understand information about what to do in a medical emergency?
HL3	to judge the advantages and disadvantages of different treatment options?
HL4	to act on advice from your doctor or pharmacist?
HL5	to find information on how to handle mental health problems? (e.g., stress, depression or anxiety)
HL6	to understand information about recommended health screenings or examinations?
HL7	to judge if information on unhealthy habits, such as smoking, low physical activity or drinking too much alcohol, are reliable?
HL8	to decide how you can protect yourself from illness using information from the mass media? (e.g., Newspapers, TV or Internet)
HL9	to find information on healthy lifestyles such as physical exercise, healthy food or nutrition?
HL10	to understand advice concerning your health from family or friends?
HL11	to judge how your housing conditions may affect your health and well-being?
HL12	to make decisions to improve your health and well-being?

Response options:	[1] Very difficult, [2] Difficult, [3] Easy, [4] Very easy
Source:	Bielefeld University for HLS19 (2020). HLS19-Q12-DE_German – The German instrument for measuring health literacy in the general population.  M-POHL. Bielefeld.
Psychometric quality:	<ul> <li>Cronbach's alpha: .73 (Germany)</li> <li>Single-Factor Confirmatory Factor Analysis: SRMSR: .07; RMSEA: .04; CFI: .97</li> <li>Rasch Partial Credit Model (PCM): The results of the PCM and Rasch models are based on the 12 polytomous (4 levels: very easy, easy, difficult, very difficult) HLS19 items. When testing data against the PCM for each country, the HLS19-Q12 displays good overall data-model fit in Austria, Denmark, Germany, Israel, Italy, Norway, Slovakia, and Switzerland.</li> <li>Content and face validity: By using the theory-based matrix of the comprehensive model of multi-dimensional general HL for its operationalization, the content and face validity of the HLS19 -Q12 is ensured.</li> </ul>



	<ul> <li>Discriminant validity: The mean Pearson correlations of the HLS19 -Q12 with the HLS19 -Q47 long form was 0.93 (for 6 countries) and with the HLS19 -Q16 short form 0.92 (for 14 countries).</li> <li>Concurrent predictive validity: A social gradient for the HLS19 -Q12 measure and expected associations with selected measures of health-related lifestyles, health indicators and use of health services were demonstrated - for details see chapters 6 to 9 in The HLS19 Consortium of the WHO Action Network M-POHL (2021).</li> <li>Summarizing: The HLS19 -Q12 was validated for 4 modes of data collection (PAPI, CAPI, CATI, CAWI), for several languages, in large (mostly) national samples collected in most cases by multi-stage random sampling or quota sampling procedures and demonstrated good psychometric properties and validity.</li> </ul>
Subscales:	<ul> <li>Access information relevant for health: HL1, HL5, HL9</li> <li>Understand information relevant for health: HL2, HL6, HL10</li> <li>Evaluate information relevant for health: HL3, HL7, HL11</li> <li>Use/apply information relevant for health: HL4, HL8, HL12</li> </ul>
Analysis:	<ul> <li>Calculation of the score: The HLS19-Q12 score is calculated as the percentage (ranging from 0 to 100) of items with valid responses that were answered with "very easy" or "easy" provided that at least 80% of the items contain valid responses:</li> <li>(Number of "easy" or "very easy" responses/Number of valid responses) * 100</li> </ul>
	If less than 80% of the items contain valid responses, the score is set to "missing". A higher score value signifies a higher level of general HL.  Interpretation of the score: Users should keep in mind that the HLS19-Q12 score by assessing difficulties of tasks measures the interaction of personal abilities and contextual factors related to the specific health system and the general situation of the respective country.  Measures for sub-dimensions of the score: Are possible, but not recommended due to few items and thus lower Cronbach's alphas and lower correlations with respective sub-scales of the HLS19-Q47.  Calculation of categories: The following definitions of cut-off points for the categorial levels of the HLS19 - Q12 are used (as far as possible based on the HLS-EU study):  Excellent: "very easy" ≥ 50 AND "very difficult" + "difficult" < 8.334. For "excellent", the number of answers with "very easy" should be above ¹/₂ and the answers for "very difficult" + "difficult" should be no more than ¹/₁₂.  Sufficient: "very easy" + "easy" > 83.33. For a level of "sufficient" HL, at least 10 out of the 12 items should be answered with "very easy" or "easy" and not more than 2 out of 12 with "very difficult" or "difficult".  Problematic: all respondents who are not in the groups "excellent", "sufficient", or "inadequate" (i.e., once the three other categories have been calculated). The level of "problematic" is the intersecting set of not "excellent", not "sufficient" and not "inadequate".  Inadequate: "very easy" < 8.334 AND "very difficult" + "difficult" ≥ 50. For "inadequate", the number of answers with "very difficult" +



"difficult" should be above 1/2 and for "very easy" should be no more than
<sup>1</sup> / <sub>12.</sub>

## 7 Managing health information competently

## 7.1 Teaching beliefs

Label	Instruction
TB (teaching beliefs)	If the teaching of competent use of digital and analogue health-related in-for-
	mation were addressed in the classroom, I think that

Label	Item
TB1	it helps pupils to develop a healthy lifestyle.
TB2	it improves pupils' ability to assess the reliability of health-related information.
ТВ3	this contributes to preparing pupils for an increasingly digital life.
TB4	the topic of health can be well integrated within the context of media literacy of schools

Response options:	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
Source:	<ul> <li>Self-developed based on:</li> <li>Dadaczynski, K., Rathmann, K., Hering, T., &amp; Okan, O. (2020). The role of school leaders' health literacy for the implementation of health promoting schools. <i>Int. J. Environ. Res. Public Health</i>, 17(6), 1855.</li> <li>Lai, H. R., Wu, D. M., Lee, P. H., &amp; Jhang, Y. S. (2018). Health literacy teaching beliefs, attitudes, efficacy, and intentions of middle school health and physical education teachers. <i>J. Sch. Health</i>, 88(5), 350-358.</li> </ul>
Subscales:	<ul> <li>Teaching beliefs</li> <li>Teaching efficacy</li> <li>Teaching attitudes</li> <li>Teaching intentions (not used for this study)</li> </ul>

## 7.2 Teaching attitudes

Label	Instruction
TA (teaching attitudes)	To what extent do you agree with the following statements about the teaching of
	digital and analogue health-related information at your school?

Label	Item
TA1	It is personally very important to me to teach pupils in school how to competently use health-related information.
TA2	I think schools should do more to teach pupils to be competent with health-related information.
TA3	I think it is important that the learning conditions at my school are designed to allow for the promotion of competent use of health-related information.



TA4	I think it is important that the teaching of competent use of health-related information is a mandatory part of the curriculum (e.g., as part of media literacy edu-
	cation).

Response options:	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
Source:	Self-developed based on:
	• Dadaczynski, K., Rathmann, K., Hering, T., & Okan, O. (2020). The role of school leaders' health literacy for the implementation of health promoting schools. <i>Int. J. Environ. Res. Public Health</i> , <i>17</i> (6), 1855.
	• Lai, H. R., Wu, D. M., Lee, P. H., & Jhang, Y. S. (2018). Health literacy teaching beliefs, attitudes, efficacy, and intentions of middle school health and physical education teachers. <i>J. Sch. Health</i> , 88(5), 350-358.
Subscales:	• See 7.1

## 7.3 Teaching competencies

Label	Instruction
DC (didactic competence)	Please rate the following statements.

Label	Item
DC1	I am not sure if I have enough knowledge to teach pupils skills of competent use of health-related information.
DC2	I am not sure if have the methodological and didactic skills to teach pupils how to use health-related information competently.
DC3	I am not sure if I get enough support from the colleagues to teach pupils how to use health-related information competently.
DC4	I am not sure how to integrate the teaching of competent use of health-related information into the existing curriculum.

Response options:	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
Source:	Self-developed based on:
	• Dadaczynski, K., Rathmann, K., Hering, T., & Okan, O. (2020). The role of school leaders' health literacy for the implementation of health promoting schools. <i>Int. J. Environ. Res. Public Health</i> , <i>17</i> (6), 1855.

## 7.4 Teaching intentions

Label	Instruction
IN (intention)	Please rate the following statements.

Label	Item
IN1	I intend to teach pupils in the classroom how competently to use health-related information.



IN2	I intend to support the design of the teaching and learning conditions in my school to enable the teaching of skills in using health-related information of pupils.
IN3	I intend to support my colleagues in their efforts to promote using health-related information competently (e.g., in the classroom).

Response options:	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
Source:	Self-developed based on:
	<ul> <li>Pangert, B., &amp; Schüpbach, H. (2011). Arbeitsbedingungen und Gesundheit von Führungskräften auf mittlerer und unterer Hierarchieebene. In: Badura, B., Ducki, A., Schröder, H., Klose, J. &amp; Macco, K. (Hrsg.), Fehlzeiten-Report 2011: Führung und Gesundheit (pp. 71-79). Springer: Berlin, Heidelberg.</li> </ul>
	• Wilde, B., Dunkel, W., Hinrichs, S., & Menz, W. (2010). Gesundheit als Führungsaufgabe in ergebnisorientiert gesteuerten Arbeitssystemen. In: Badura, B., Schröder, H., Klose, J., & Macco, K. (Ed.), Fehlzeiten-Report 2009 (pp. 147-155). Springer: Berlin, Heidelberg.

## 8 School health promotion

Label	Instruction
SHP (school health promotion)	In this section, we would like to know to what extent health currently plays a role at your school. At our school  Instruction: Please mark the response option which expresses your opinion the
	best.

Label	Item
SHP1	health promotion is a topic in our school development group.
SHP2	health promotion and health goals are anchored in the mission statement and programme.
SHP3	health plays an important role in the organisation of lessons.
SHP4	maintaining and promoting the health of all members plays an important role (e.g., pupils, teachers).
SHP5	health-promoting aspects play an important role in the creation of working and learning conditions.
SHP6	pupils are supported in the development of health-promoting behaviours.
SHP7	teachers are supported in dealing with stressful situations in a constructive way.
SHP8	we collaborate with external institutions in the implementation of health-promoting activities.
SHP9	teachers are made aware of health-related topics such as exercise or self-management.
SHP10	further training on health-related topics takes place regularly.
SHP11	legal guardians (e.g. parents) are involved in the planning and design of health promotion activities.
SHP12	aspects of health promotion are addressed in various school subjects



Response options:	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
Source:	Dadaczynski, K., & Hering, T. (2021). Health promoting schools in Germany.     Mapping the implementation of holistic strategies to tackle NCDs and promote health. <i>Int. J. Environ. Res. Public Health</i> , 18(5), 2623.
	• Institut für Schulqualität der Länder Berlin und Brandenburg e. V. (ISQ) (2022). SelbstEvaluationsPortal Schule (SEP Schule). Das Modul Gesundheitsförderung für Lehrkräfte. Baustein 2: Schulinternes Curriculum. Online available at: https://sep-schule-bb-live.outermedia.net/de_DE/start/befragungsinhalte/gesundheit.html. (Last access: 03.08.2022).
Remarks/ adap- tations:	<ul> <li>SHP1-10 were taken from Dadaczynki &amp; Hering (2021)</li> <li>SHP12 was taken from the scale "school curriculum" of the self-assessment portal (SEP) Schule Berlin-Brandenburg.</li> <li>SHP11 was added (self-developed)</li> </ul>
Psychometric quality:	<ul> <li>For SHP1-SHP10:</li> <li>Principal component analysis (PCA) resulted in two factors of HPS implementation (F1: concrete HPS action, F2: capacity building for HPS)</li> <li>Cronbach alpha: Factor 1=0.83; Factor 2=0.87</li> </ul>

### 9 Health and climate behaviour

### 9.1 Health behaviour

Label	Instruction
HB (health behaviour)	The following is about what you personally do for your health.
	Instruction: Please indicate to what extent the following aspects apply to you.

Label	Item
HB1	I make sure I get enough physical activity and sports.
HB2	I regularly make use of medical check-ups (e.g. check-ups, screenings).
HB3	I make sure I get enough sleep.
HB4	I pay attention to a balanced and healthy nutrition.
HB5	I use tobacco products. (invert)
HB6	I pay attention to signs of possible health problems (e.g., taking blood pressure, pulse, observing moles, palpating the breast).
HB7	I have more than two alcoholic drinks a day. (invert)
HB8	I make sure I get enough rest and relaxation in my free time.
HB9	I pay attention to a healthy body weight.

Response opti-	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
ons:	
Source:	Self-developed based on:
	Courtenay, W. H. (1998). Health Risk Inventory: A 60 item instrument for measuring health beliefs and behaviors. Berkeley, CA.
	• Levant, R. F., Wimer, D. J., & Williams, C. M. (2011). An evaluation of the



	Health BehaviorInventory20 (HBI-20) and its relationships to masculinity and attitudes towards seeking psychological help among college men. <i>Psychol Men Masculinity</i> , <i>12</i> (1), 26-41.
	• Levant, R. F., Alto, K. M., McKelvey, D., Pardo, S., Jadaszewski, S., Richmond, K., Keo-Meier, C & Gerdes, Z. (2020). Development, variance composition, measurement invariance across five gender identity groups, and validity of the Health Behavior Inventory–Short Form. <i>Psychol. Men Masculinities</i> , 21(2), 177–189.
Remarks/ adap- tations:	Please note that items HA5 and HA7 need to be inverted (reverse-scored) before calculating the scale.

## 9.2 Climate change

Label	Instruction
CC (climate change)	Now we would like to know how you assess climate change.

Label	Item
CC1	Do you believe climate change exists?
CC2	Do you believe that climate change and other environmental and climatic changes are caused by human behaviour?

Response opti-	[1] Yes, [2] No
ons:	
Source:	Self-developed

# 9.3 Climate change and health

Label	Item
CCH (climate change and health)	What do you think: How strong are the effects that human induced climate and environmental changes (e.g., climate change, changes in ecosystems due to toxic substances or novel substances such as plastics) can have on your own health?

Response opti-	[1] No effects, [2] Low effects, [3] Moderate effects, [4] Strong effects
ons:	
Source:	Self-developed based on:
	• Reismann, L., Weber, A., Leitzmann, M., & Jochem, C. (2021). Climate-specific health literacy and medical advice: The potential for health cobenefits and climate change mitigation. An exploratory study. <i>The Journal of Climate Change and Health</i> , 4, 100072.

### 9.4 Climate and environmental action

Label	Instruction
CA (climate action)	In the following we would like to learn something about your climate and environ-
	mental behavior.



<b>Instruction</b> : Please indicate how much the following statements apply to you.

Label	Item
CA1	In everyday life, I prefer to travel by bike or on foot rather than by car.
CA2	I prefer travelling by train instead of driving by car or flying.
CA3	My diet is mainly meat and fish free.
CA4	In everyday life, I try to save water and electricity.
CA5	I participate in climate and environmental protection activities in my city (e.g., waste collection campaigns, demonstrations).
CA6	I am involved in an organisation that promotes climate and environmental protection.
CA7	I talk to other people about climate and environmental protection.

Response op-	[1] Strongly disagree, [2] Disagree, [3] Agree, [4] Strongly agree
tions:	
Source:	Self-developed based on:
	• Reismann, L., Weber, A., Leitzmann, M., & Jochem, C. (2021). Climate-specific health literacy and medical advice: The potential for health co-benefits and climate change mitigation. An exploratory study. <i>The Journal of Climate Change and Health</i> , 4, 100072.
	Krettenauer, T. (2017). Pro-environmental behavior and adolescent moral development. <i>J. Res. Adolesc.</i> , <i>27</i> (3), 581-593.

## 10 Physical and mental health status

### 10.1 General health

Label	Item
GH (general health)	How is your health in general?
Response opti-	[1] Very good, [2] Good, [3] Fair, [4] Bad, [5] Very bad
ons:	
Source:	• Lampert, T., Schmidtke, C., Borgmann, L.S., Poethko-Müller, C., & Kuntz, B. (2018). Subjektive Gesundheit bei Erwachsenen in Deutschland. <i>J. Health Monit.</i> , 3(2), 64–71.

### 10.2 Chronic disease

Label	Item
CD (chronic disease)	Do you have a chronic disease or a long-lasting health problem?  Instruction: Chronic illnesses are long-term illnesses that require constant treatment and monitoring, e. g. diabetes or heart diseases. (filter question for 10.3)



Response opti-	[1] Yes (trigger filter), [2] No
ons:	
Source:	Robert Koch-Institut (2017). Fragebogen zur Studie "Gesundheit in Deutsch-
	land aktuell": GEDA 2014/2015-EHIS. [Questionnaire for the study "German
	Health Update": GEDA 2014/2015-EHIS]. J. Health Monit., 2(1), 105–135.

## 10.3 Impairment by health problems

Label	Item
IMPSTR (Impairment	To what extent are you impaired by your chronic illness in activities of normal everyday life?
by health problems)	<b>Instruction</b> : This refers to impairments that last or are expected to last <u>at least 6</u> months.
Response opti-	[1] Strongly impaired, [2] Moderately impaired, [3] Not at all impaired, [4] Don´t
ons:	know
Source:	• Robert Koch-Institut (2017). Fragebogen zur Studie "Gesundheit in Deutschland aktuell": GEDA 2014/2015-EHIS. [Questionnaire for the study "German Health Update": GEDA 2014/2015-EHIS]. <i>J. Health Monit.</i> , 2(1), 105–135.

## 10.4 Presentism

	Label	Instruction
DD ()	How often did it happen in the <u>last school year</u> that you	
	PR (presentism)	<b>Instruction</b> : Please consider your working hours excluding holiday periods.

Label	Item
PR1	showed up at work despite being sick?
PR2	worked despite heavy symptoms of sickness (e.g. pain, chills, fever)?
PR3	worked the full workday despite being sick?
PR4	dragged yourself to work even though you were sick?

Response opti-	[1] Very often, [2] Often, [3] Sometimes, [4] Rarely, [5] Very rarely/never
ons:	
Source:	<ul> <li>Krause, A., Baeriswyl, S., Berset, M., Deci, N., Dettmers, J., Dorsemagen, C., Meier, W., Schraner, S., Stetter, B., &amp; Straub, L. (2015). Selbstgefährdung als Indikator für Mängel bei der Gestaltung mobil-flexibler Arbeit: Zur Entwicklung eines Erhebungsinstruments. Wirtschaftspsychologie, 17(1), 49-59.</li> </ul>
Note:	<ul> <li>Wording adapted for item PR 3 ("full workday" instead of "full shift")</li> <li>Addition to the instruction ("excluding holiday periods") to improve the fit with the school context</li> </ul>
Psychometric quality:	<ul> <li>Reliability: Cronbach's alpha: .94</li> <li>Validity: Confirmatory factor analysis was performed to determine content validity. Correlation analyses were used to determine the construct validity.</li> </ul>



Subscales:	Not included in this study:  Extensification of work  Intensification of work  Intake of recuperative substances  Intake of stimulant substances  Fake
	<ul><li>Quality reduction</li><li>Evasion of safety and security standards</li></ul>

## 10.5 Well-being

Label	Instruction
WHO	The following statements concern your well-being during the last two weeks.  Instruction: Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks  Over the last two weeks

Label	Item
WHO1	I have felt cheerful and in good spirits.
WHO2	I have felt calm and relaxed.
WHO3	I have felt active and vigorous.
WHO4	I woke up feeling fresh and rested.
WHO5	my daily life has been filled with things that interest me.

Response options:	[0] At no time, [1] Some of the time, [2] Less than half of the time, [3] More than half of the time, [4] Most of the time, [5] All of the time
Source:	Bech, P. (2004). Measuring the dimensions of psychological general well- being by the WHO-5. <i>QoL Newsletter</i> , 32, 15-16.
	• Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 Well-Being Index: a systematic review of the literature. <i>Psychother Psychosom</i> , 84(3), 167-176.
Psychometric quality:	The WHO-5 has been found to have adequate validity in screening for depression and in measuring outcomes in clinical trials. Item response theory analyses in studies of younger persons and elderly persons indicate that the measure has good construct validity as a unidimensional scale measuring well-being in these populations.
Analysis:	• The total raw score, ranging from 0 to 25, is multiplied by 4 to give the final score, with 0 representing the worst imaginable well-being and 100 representing the best imaginable well-being. When WHO-5 is used for the screening of depression, a cut-off score of ≤ 50 is suggested.