

GUIDEBOOK FOR USE OF QUESTIONNAIRE FOR MEASURING DIGITAL HEALTH LITERATURE COMPETENCE IN HEALTH PERSONNEL

PUBLIC HEALTH INFORMATICS COMPETENCIES FOR PRIMARY HEALTH CARE



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MEASUREMENT INSTRUMENTS DIGITAL HEALTH LITERATURE COMPETENCE FOR HEALTH PERSONNEL (PUBLIC HEALTH INFORMATICS COMPETENCIES FOR PRIMARY HEALTH CARE)

1. BACKGROUND

The development of digital technology is inseparable from the Industrial revolution 4.0, which leads to everything digital and network-based in all sectors of people's lives and encourages social innovation [1]. Social innovations, including the health sector, are also affected by the Industrial Revolution 4.0, both directly and indirectly, in medical and non-medical services. This condition requires the community to have more capabilities in digital health literacy. Digital health literacy is the skills, knowledge, and practice related to health that a person needs to function optimally in the e-Health and digital-based information community [2].

In the modern era, medical records are starting to develop into Electronic Medical Records. Electronic Medical Records are patient files or documents stored electronically, one of which is computerized. Before the modernization era, everything was done manually, including activities to get health services. People have to come early to queue to register for public health care, and people have to wait for a relatively long time, jostle, and queue to get health services.

Currently, the number of public health care in Indonesia is 9,993 units as of August 2019 [3] and 3112 hospitals. Implementing health digitization (e_health) in public health care, hospitals, and clinics requires the readiness of human resources in health services. Health workers' lack of health literacy will hinder digital-based health services (e-Health). This will be detrimental because e-Health has been proven safer, more efficient, and more effective. Therefore, it is necessary to develop a measurement tool or instrument for measuring digital health literacy competence in health workers.

This measurement instrument is called Public Health Informatics Competencies for Primary Health Care, a questionnaire containing indicators measuring digital competence and Health literacy.

2. FRAMEWORK

PHIC4PHC was developed from a literature review and has been tested for validity and reliability [4]; the primary references for this questionnaire are the ICT literacy framework [5] and the “ehealth literacy scale” [6]. With the following indicators:

Table 1 Dimension of Initial PHIC4PHC questionnaire

No	Main Category	Indikator	Items
1	Cognitive Proficiency	1.1. Health Information System Knowledge	8
		1.2. Health Information System Skill	3
2	Technical Proficiency	2.1. General Computer Skill	13
		2.2. Office Skills	6
		2.3. Network Skill	2
3	Ethical Proficiency	3.1. Legal Knowledge	1
		3.2. Security Knowledge	1
4	Health Information Literacy	4.1. Access	2
		4.2. Manage	2
		4.3. Integrate	2
		4.4. Evaluate	2
Total			42

Competence in the questionnaire questions is divided into eight abilities, namely:

1. Strongly Disagree (SD)
2. Disagree (D)
3. Neither Disagree Nor Agree (NDA)
4. Agree (A)
5. Strongly Agree (SA)

3. MEASUREMENT AND INTERPRETATION

Table 2. PHIC4PHC indicators and question items

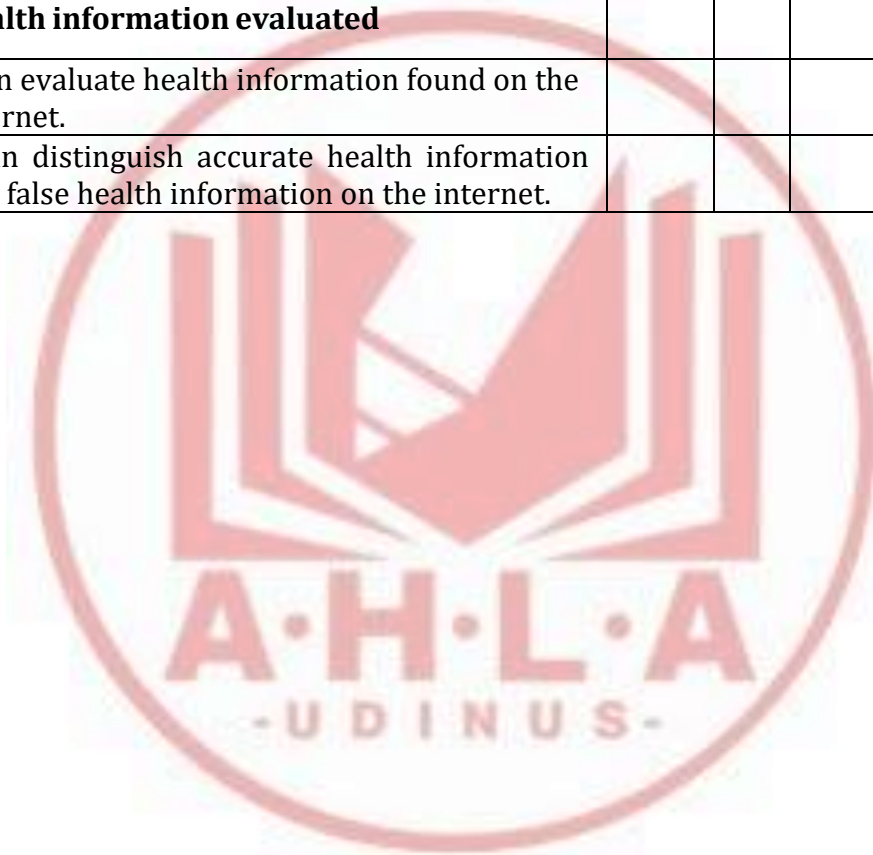
No	Items questionnaire/ Attribute	SD	D	NDA	A	SA
1.1	Health Information System Knowledge					
1	I know about health information systems (HIS), such as public health care and hospital management systems.					

No	Items questionnaire/ Attribute	SD	D	NDA	A	SA
2	I know about the current health information system at my job					
3	I know the essential milestones of the change (evolution) of the health information system (HIS) in the healthcare agency where I work.					
4	I know computer applications that can help with daily work (e.g., environmental health, health promotion, etc.)					
5	Computers can be used as a tool for staffing, controlling, etc.					
6	I know the importance and benefits of data for my work.					
7	I pay attention to how data is collected and used.					
8	HIS is a helpful tool for efficiency in health service agencies where you work					
1.2	Health Information System skills					
9	I can use HIS to get the job done.					
10	I can use a health information system (HIS) to store, retrieve and transfer data in the work environment.					
11	I can not use computer equipment used in medical and health services.					
2.1	General Computer Skills					
12	I can solve common and straightforward problems of error conditions (troubleshooting) on the computer					
13	I can use word processing applications (word processing software) to produce the documents needed for my work.					

No	Items questionnaire/ Attribute	SD	D	NDA	A	SA
14	I can use database software to create the databases needed for my work.					
15	I don't know how to use a computer for personal needs.					
16	I cannot use computer support equipment such as printers, scanners, etc.					
17	I do not know the cause of the slow response of the program, e.g., many users of the program.					
18	The computer program is a tool to help effectiveness and efficiency.					
19	Files on the computer need to be backed up.					
20	I mainly know how to use a computer, for example, turning on the computer, shutting it down, and using the mouse.					
21	I know the function of using file management (file management) in computer operating systems, for example, creating, copying, move folders or files.					
22	I know how to use a computer operating system, for example, Windows.					
23	I know how to organize and save files.					
24	I don't know how to install driver software for computer support equipment such as printers, scanners, etc.					
2.2	Office application skill					
25	I can't use a spreadsheet program (e.g., Excel) to process simple data.					

No	Items questionnaire/ Attribute	SD	D	NDA	A	SA
26	I can't use presentation editing software (e.g., PowerPoint) for presentations or education.					
27	I can't use statistical software for research and needs at work.					
28	I can use the computer as a self-study tool.					
29	I cannot use computer-based self-learning tools, such as e-learning, CD learning					
30	I can convert files to various application formats, for example, from word to pdf.					
2.3	Network skill					
31	I can't use the INTERNET/ world wide web (www) to search for information.					
32	I can receive and send emails and transfer files over the network.					
3	Security, Legal knowledge					
33	When processing computer data and medical records, confidentiality is essential.					
34	I know the rules/laws relating to protecting patient information on computers.					
4.1	Health Information Access					
35	I know what health information is available on the internet.					
36	I know where to find helpful health information on the internet.					
4.2	Health information manage					
37	The internet can be used as a source of health information.					

No	Items questionnaire/ Attribute	SD	D	NDA	A	SA
38	I know how to find helpful health information on the internet.					
4.3	Health information integrated					
39	I know how to use the internet to answer health questions.					
40	I know how to use the health information I find to help with work.					
4.4	Health information evaluated					
41	I can evaluate health information found on the internet.					
42	I can distinguish accurate health information and false health information on the internet.					



PHIC4PHC Index Calculation

The score results from 42 PHIC4PHC questions will be used to measure the level of digital health literacy competence in the form of the PHIC4PHC Index. The score will follow the questionnaire for positive questions, while for negative questions, The Score will reverse the score. The general calculation for the index is as follows:

$$\text{index} = (\text{mean} - 1) * \left(\frac{50}{4} \right)$$

Thus the method of calculation is:

$$\text{PHIC4PHC} = \left(\frac{Q1 + Q2 + Q3 + Q4 + Q5 \dots + Q42}{42} - 1 \right) * 50 / 4.$$

The index value is then categorized as follows:

0-25	= 'Basic'
>25 to 33	= 'Literacy'
>33 to 42	= 'Fluency'
>42	= 'Mastery'

4. CLOSING

The community needs digital health literacy to respond to digital transformation, which also involves the health sector. Society needs to be ready to face change. With this measurement instrument, it is possible to identify and improve the competencies that need to be improved so that the digital transformation of the Health sector can function optimally to support the Health program.

5. REFERENCE

1. Morrar, R., H. Arman, and S. Mousa, *The fourth industrial revolution (Industry 4.0): A social innovation perspective*. Technology Innovation Management Review, 2017. 7(11): p. 12-20.
2. David Novillo Ortiz, P., *Digital Health Literacy for NCDs in First Meeting WHO GCM/NCD Working Group on Health Literacy for NCDs*, WHO, Editor. 2017: Geneva.
3. Kesehatan, K., *Data Dasar Puskesmas 2019*. 2019, Pusat Data dan Informasi: Jakarta.
4. Rachmani, E., et al., *Development and validation of an instrument for measuring competencies on public health informatics of primary health care worker (PHIC4PHC) in Indonesia*. Prim Health Care Res Dev, 2020. 21: p. e22.

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5. Panel, I.L., *Digital transformation: A framework for ICT literacy*, in *Educational Testing Service*. 2002.
 6. Norman, C.D. and H.A. Skinner, *eHEALS: The eHealth Literacy Scale*. *J Med Internet Res*, 2006. **8**(4): p. e27.



6. REFERENCE

QUESTIONNAIRE PHIC4PHC (Public Health Informatics for Primary Health Care)
Put a tick (✓) based on your OPINION or YOUR SELF-RATING related to ICT:

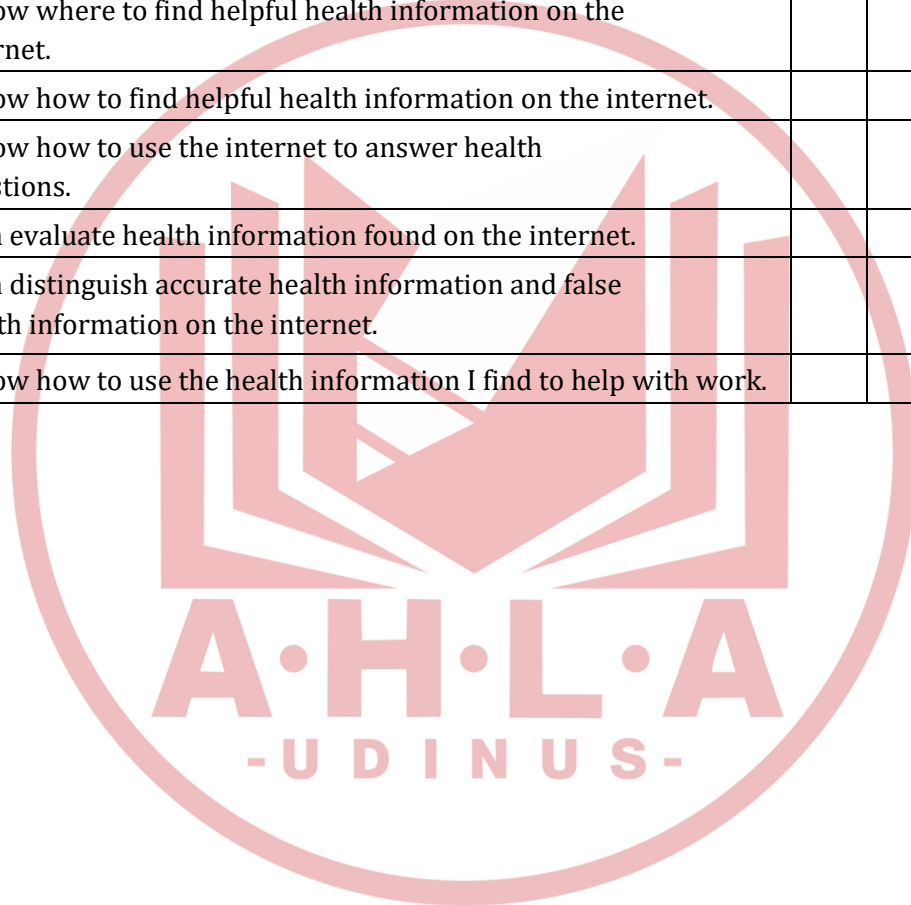
**SD= Strongly Disagree; D=Disagree; NDA= Neither Disagree Nor Agree;
A=Agree; SA= Strongly Agree**

The results of the questionnaire are not related to any assessment in your work; please answer as it is.

No	Statement	SD	D	NDA	A	SA
1	I mainly know how to use a computer, for example, turning on the computer, shutting it down, and using the mouse.					
2	I know the function of using file management (file management) in computer operating systems, for example, creating, copying, move folders or files.					
3	I know how to use a computer operating system, for example, Windows.					
4	I don't know how to install driver software for computer support equipment such as printers, scanners, etc.					
5	I can solve common and straightforward problems of error conditions (troubleshooting) on the computer					
6	I can't use the INTERNET/ world wide web (www) to search for information.					
7	I can receive and send emails and transfer files over the network.					
8	I cannot use computer-based self-learning tools, such as e-learning, CD learning					
9	I know about health information systems (HIS), such as public health care and hospital management systems.					
10	I know about the current health information system at my job.					
11	HIS is a helpful tool for efficiency in health service agencies where you work					
12	I know the essential milestones of the change (evolution) of the health information system (HIS) in the healthcare agency where I work.					

No	Competency	SD	D	NDA	A	SA
13	I know computer applications that can help with daily work (e.g., environmental health, health promotion, etc.)					
14	I don't know how to use a computer for personal needs.					
15	I can use word processing applications (word processing software) to produce the documents needed for my work.					
16	I can't use a spreadsheet program (e.g., Excel) to process simple data.					
17	I can't use presentation editing software (e.g., PowerPoint) for presentations or education.					
18	I can use database software to create the databases needed for my work.					
19	I can use HIS to get the job done.					
20	I can use a health information system (HIS) to store, retrieve and transfer data in the work environment.					
21	I can not use computer equipment used in medical and health services.					
22	I can't use statistical software for research and needs at work.					
23	I know how to organize and save files.					
24	I can convert files to various application formats, for example, from word to pdf.					
25	I cannot use computer support equipment such as printers, scanners, etc.					
26	I can use the computer as a self-study tool.					
27	The computer program is a tool to help effectiveness and efficiency.					
28	I do not know the cause of the slow response of the program, e.g., many users of the program.					
29	Files on the computer need to be backed up.					
30	Computers can be used as a tool for staffing, controlling, etc.					

No	Competency	SD	D	NDA	A	SA
31	I know the importance and benefits of data for my work.					
32	I pay attention to how data is collected and used.					
33	When processing computer data and medical records, confidentiality is essential.					
34	I know the rules/laws relating to protecting patient information on computers.					
35	The internet can be used as a source of health information.					
36	I know what health information is available on the internet.					
37	I know where to find helpful health information on the internet.					
38	I know how to find helpful health information on the internet.					
39	I know how to use the internet to answer health questions.					
40	I can evaluate health information found on the internet.					
41	I can distinguish accurate health information and false health information on the internet.					
42	I know how to use the health information I find to help with work.					





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KEMENTERIAN HUKUM DAN HAK ASASI MANUSIA

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Nomor dan tanggal permohonan : EC00202247487, 25 Juli 2022

Pencipta

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Kewarganegaraan : **Indonesia**

Jenis Ciptaan : **Karya Tulis Lainnya**

Judul Ciptaan : **Kuesioner Pengukuran Kompetensi Literasi Kesehatan Digital Pada Tenaga Kesehatan: Public Health Informatics Competencies For Primary Health Care (PHIC4PHC)**

Tanggal dan tempat diumumkan untuk pertama kali di wilayah Indonesia atau di luar wilayah Indonesia : **19 Maret 2022, di Semarang**

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Nomor pencatatan : **000363216**

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Surat Pencatatan Hak Cipta atau produk Hak terkait ini sesuai dengan Pasal 72 Undang-Undang Nomor 28 Tahun 2014 tentang Hak Cipta.



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