

IS HEALTH LITERACY EQUAL WITH E-HEALTH LITERACY AMONG LEPROSY STAFF AT PUBLIC HEALTH CENTER PEKALONGAN DISTRICT, INDONESIA

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Abstract

Leprosy is a neglected disease in the world but constantly become a problem in Indonesia with public health center (PHC) as assignee. PHC need ICT approach to deal with the obstacles in leprosy control program (LCP). Penetration of internet through wireless or fix cable on PHC could help to enlarge the coverage of LCP. Health staff mostly have adequate health literacy however is e-health literacy the same? This study challenge if e-health literacy score of leprosy staff is the same between health literacy categorize.

Pekalongan District has 27 PHC with 55 responsible staff on leprosy program. All of them was used as respondents. Collecting data used questioners and observation through cross sectional approach. Health literacy was measured with HLS-EU-16 (Health Literacy Survey-Europe-16 Questions), and e-health literacy used eHEALS (eHealth Literacy Scale).

Leprosy staff have 76.3% adequate health literacy and still have inadequate and problematic health literacy, 5.5% and 18.2% respectively. This study retain the null hypothesis with Sig 0.9 so that the distribution of e-heals is the same across health literacy index. It means no difference of e-health literacy scale of leprosy staff with limited health literacy and adequate health literacy. Furthermore this study reveal that leprosy staff accept internet as one of source of references.

The WHO mandatory five core competencies for caring patients with chronic conditions, one of them is information and communication technology. Leprosy staff are essential having e-health literacy as one of their competency because of the widespread use of the Internet can be used as a medium for health information.

Keyword : Health literacy, E-health literacy, Leprosy, Primary Health Center

A. Introduction

Leprosy or Hansen Disease is a neglected disease in the world but still unsuccessfully control in Indonesia[1]. In 2012 Indonesia develops 18,994 new cases and become the biggest third in the world [2]. Leprosy is a chronic infectious disease caused by *Mycobacterium Leprae* and can be classified as a complex disease [3-5] with public health center (PHC) is the actor for controlling the spread of leprosy in Indonesia.

World Health Organization developed a healthcare workforce guideline especially for chronic disease consist of five competency like

patients centered care, partnering, quality improvement, information and communication technology (ICT) and public health perspective. ICT skill is one of competency that healthcare staff should have to take care a chronic patients [6]. Indonesia's PHC need ICT approach to deal with the obstacles in their program especially in leprosy control program (LCP). Penetration of internet through wireless or fix cable on PHC could help them to enlarge the coverage of LCP[7, 8].

Vision of Healthy People 2020 has topic about health communication and health information technology which has

objectives for increasing health literacy skill and increasing internet and mobile access [9]. In this era health literacy and e-health literacy are essential skill for health care staff because they should have ability to manage their health and the health of those they care for further more increasingly using the Internet to deliver health information and services make health professionals have to develop additional skills in the understanding and use of consumer health information.

Implementation ICT is a new approach in leprosy control program especially in Indonesia and need the readiness of leprosy staff which they should be enriched with health literacy and e-health literacy [10-13]. This study will describe health literacy and e-health literacy of leprosy staff and compare e-health literacy across health literacy categorize.

B. Method

Participants and setting

Pekalongan District has 27 PHC and this study interviewed 55 persons consist of Manager PHC and leprosy programmer staff and one person as district supervisor for leprosy control program.

Data Collection

Health literacy index was measured with HLS-EU-16 (Health Literacy Survey-Europe-16 Questions), and e-health literacy used eHEALS (eHealth Literacy Scale) and both of them used self-perceived measure with linked scale. Health literacy self-report scale start with very difficult until very easy and e-heals start from strongly disagree until strongly agree.

Data Analyze

Score results from HLS-EU-16 were changed become index through formula $(\text{mean} - 1) \times (50/3)$ and be categorized [14, 15]. Furthermore e-heals scale be compared across categorized of index health literacy.

C. Result and discussion

Result

This study describe characteristic demographic of leprosy staff consist of age,

gender, education and work experience. Leprosy staff's mean of age is 41.47 years old and mean for work experience is 14.50 years.

Table 1. Respondent characteristics.

Variables	f	%
Age		
< 30 years old	5	9.1
31-40 years old	18	32.7
41-50 years old	30	54.5
>50 years old	2	3.6
Sex		
Male	35	63.6
Female	20	36.4
Education		
Senior High School	1	1.8
Diploma	20	36.4
Bachelor	27	49.1
Master	7	12.7
Work Experience		
1-10 years	23	41.8
10.1-20 years	16	29.1
20.1-30 years	14	25.5
>30 years	2	3.6

Table 1 shows that the biggest proportion of age is between 41-50 years old with 54.5%. The highest education proportion for bachelor degree is 49.1%. The biggest proportion for work experience is between 1-10 years.

Table 2 shows attitude of leprosy staff regarding internet daily activities. 29.1% access internet from home and 60% never access from workplace. More than 50% leprosy staff never used internet to access news group but 27.3% used to access online news daily. More than 60% ever used internet as reference materials and access health information.

Table 2. Behavior access internet of Pekalongan District's leprosy staff.

Access internet	f	%
From home		
Daily	16	29.1
Weekly	9	16.4
Monthly	4	7.3
< once a month	15	27.3

Never	11	20
From work		
Daily	8	14.5
Weekly	6	10.9
Monthly	1	1.8
< once a month	7	12.7
Never	33	60
Access news group		
Daily	12	21.8
Weekly	8	14.5
Monthly	3	5.5
< once a month	4	7.3
Never	28	50.9
Access online news		
Daily	15	27.3
Weekly	10	18.2
Monthly	3	5.5
< once a month	9	16.4
Never	18	32.7
Access reference material		
Daily	4	7.3
Weekly	10	18.2
Monthly	7	12.7
< once a month	14	25.5
Never	20	36.4
Access health/medical information		
Daily	6	10.9
Weekly	8	14.5
Monthly	11	20.0
< once a month	15	27.3
Never	15	27.3

Table 3. Descriptive statistic of health literacy index and e-health literacy

Variables	Value
Health Literacy Index	
Mean	38.08
Maximum	50.00
Minimum	20.83
Standard Deviation	8.22
E-health Literacy Scale	
Mean	38.43
Maximum	48.00
Minimum	28.00
Standard Deviation	4.16

Table 3 above shows health literacy index and e-healths have mean 38.8 and 38.43 respectively. Furthermore table shows that some leprosy staff have maximum health literacy index (50 score).

Table 4 below describes that more than 70% of leprosy staff have adequate health literacy and more than 60% have e-health literacy above average.

Table 4. Distribution frequency of categorize of health literacy index and e-health literacy

Variables	f	%
Health Literacy		
Inadequate	3	5.5
Problematic	10	18.2
Sufficient	23	41.8
Excellent	19	34.5
E-healths		
Below average	21	38.2
Above average	34	61.8

Table 5 shows that e-health literacy within the group problematic and sufficient are not much different except for inadequate and excellent.

Table 5. Cross tabulation between health literacy and e-health literacy among leprosy staff

Variables	E-healths	
	Below %	Above %
Inadequate	33.3	66.7
Problematic	50.0	50.0
Sufficient	43.5	56.5
Excellent	26.3	73.7
Total	38.2	61.8

Table 6. Mean of e-health literacy within health literacy groups.

Health Literacy	E-health Literacy	
	Mean	SD
Inadequate	37.33	4.61
Problematic	37.30	4.37
Sufficient	38.56	3.10
Excellent	39.05	5.19

Furthermore shows in table 6 that e-health literacy's mean between the health literacy groups are not much different with the highest mean is excellent group.

The result of non-parametric statistical test Kruskal-Wallis turned out that no difference mean of e-health literacy within group of health literacy index which showed in table 7.

Table 7. The Hypothesis test of e-health literacy scale across the group of health literacy.

Hypothesis Test Summary			
Null Hypothesis	Test	Sig.	Decision
1 The distribution of ehealth scale is the same across categories of categorize index health literacy.	Independent-Samples Kruskal-Wallis Test	.900	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Discussion

Internet has role to disseminate health information in developing countries but some lack should be handle first, one of them is e-health literacy [16]. eHealth literacy is determined by a person's presenting health issue, educational background, health status at the time of the eHealth encounter, motivation for seeking the information, and the technologies used. eHealth literacy also a complex literacy because combines six core skills (or literacies): traditional literacy, health literacy, information literacy, scientific literacy, media literacy, and computer literacy[17]. Implementation e-health also affected by infrastructure which still exist become a problem in developing countries even though already have been proofed had positive impact [18-20]. Health literacy among healthcare staff or people in health sector is commonly adequate but usually in traditional approach. Using ICT system to elevate health literacy further health outcome in developing countries should become one focus together between stakeholders like health department and ICT department [21].

D. Conclusion

This study reveal that there is no difference e-health literacy between health literacy groups

it means internet can be used as a source of health information and reference material among leprosy staff.

E. Reference.

1. Molyneux, D.H., "Neglected" diseases but unrecognised successes—challenges and opportunities for infectious disease control. *The Lancet*, 2004. **364**(9431): p. 380-383.
2. WHO, Global leprosy: update on the 2012 situation, W.e. record, Editor 2013, WHO. p. 365-380.
3. Lockwood, D.N. and S. Suneetha Leprosy: too complex a disease for a simple elimination paradigm. *Bulletin of the World Health Organization*, 2005. **83**, 230-235.
4. Feenstra, P., Strengths and weaknesses of leprosy-elimination campaigns. *The Lancet*, 2000. **355**(9221): p. 2089-2090.
5. Noordeen, S.K., elimination leprosy as public health problem: progress and prospects, in *Bulletin WHO1995*, WHO: Geneva. p. 1-6.
6. Organization, W.H., Preparing a health care workforce for the 21st century: the challenge of chronic conditions. 2005.
7. Rachmani, E., C. Hsu, and A. Kurniadi. How Health Information System Could Help The Leprosy Control Program in Indonesia? in *International Conference On Instrumentation, Communication, Information Technology and Biomedical Engineering (ICICI BME) 2013*. 2013. Bandung, Indonesia.
8. Rachmani, E., A. Kurniadi, and C.Y. Hsu. Health information system model for monitoring treatment and surveillance for leprosy patients in indonesia (case study in pekalongan District, central java, indonesia). in *Studies in health technology and informatics*. 2013. Copenhagen, Denmark: IOS Press.
9. Promotion, O.o.D.P.a. Healthy People 2020. Health Communication and Health Information Technology 2010 [cited 2915 November,20,2015]; Available from: <http://www.healthypeople.gov/2020/topics-objectives/topic/health-communication-and-health-information-technology>.

10. Rachmani, E., C.Y. Hsu, and A. Kurniadi. How health information system could help the leprosy control program in Indonesia? in *Instrumentation, Communications, Information Technology, and Biomedical Engineering (ICICI-BME)*, 2013 3rd International Conference on. 2013. IEEE.
11. Bakker, M.I., P.F. Scheelbeek, and S.M. Van Beers, The use of GIS in leprosy control. *Leprosy review*, 2009. **80**(3): p. 327-331.
12. DE, M., S. DIAS, and L. NOBRE, The use of Geographical Information System (GIS) to improve active leprosy case finding campaigns in the Municipality of Mossoro, Rio Grande do Norte State, Brazil. *Lepr Rev*, 2007. **78**: p. 261-269.
13. Queiroz, J.W., et al., Geographic information systems and applied spatial statistics are efficient tools to study Hansen's disease (leprosy) and to determine areas of greater risk of disease. *The American journal of tropical medicine and hygiene*, 2010. **82**(2): p. 306-314.
14. Consortium, T.H.-E., HLS-EU-Q Measurement of health literacy in Europe: HLS-EU-Q47; HLS-EU-Q16; and HLS-EU-Q86, 2012, Executive Agency for Health and Consumers.
15. RESEARCH), J.M.P.L.B.I.H.P., F.R.L.B.I.H.P. RESEARCH), and K.G.L.B.I.H.P. RESEARCH), Comparative report on health literacy in eight EU member states. *The European Health Literacy Survey HLS-EU*, 2012, THE HLS-EU CONSORTIUM (THE EUROPEAN HEALTH LITERACY PROJECT CONSORTIUM).
16. Edejer, T.T.-T., Disseminating health information in developing countries: the role of the internet. *Bmj*, 2000. **321**(7264): p. 797-800.
17. Norman, C.D. and H.A. Skinner, eHealth literacy: essential skills for consumer health in a networked world. *Journal of medical Internet research*, 2006. **8**(2).
18. Fraser, H.S., et al., Implementing electronic medical record systems in developing countries. *Informatics in primary care*, 2005. **13**(2): p. 83-96.
19. Marcelo, A.B., Telemedicine in developing countries: Perspectives from the Philippines, in *Telehealth in developing world*, K.H. RICHARD WOOTTON, NIVRITTI G PATIL, RICHARD E SCOTT, Editor. 2009, Royal Society of Medicine Press Ltd: Canada.
20. Blaya, J.A., H.S. Fraser, and B. Holt, E-health technologies show promise in developing countries. *Health Affairs*, 2010. **29**(2): p. 244-251.
21. Van Wyk, T., P. Sauni, and T. Neal, *Digital Health Literacy in Commonwealth Pacific Nations*. 2012.