JOURNAL OF AGROMEDICINE AND MEDICAL SCIENCES (AMS) ISSN: 2460-9048 (Print), ISSN: 2714-5654 (Electronic)
Available online at http://jurnal.unej.ac.id/index.php/JAMS

Analysis of Health Literacy Index Difference Amongst Generation in Jagapura Primary Healthcare Work Area

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Article Info

Article History:
Received: November 22, 2022
Accepted: February 16, 2022
Published: February 28, 2022

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How to cite this article: *:*

Fatharani, M., & Hilmy, N. (2023). Analysis of Health Literacy Index Difference Amongst Generation in Jagapura Primary Healthcare Work Area. *Journal of Agromedicine and Medical Sciences*, 9(1), 10-15.

https://doi.org/10.19184/ams.v9i1.33929

Abstract

Health literacy is one of the factors which has a big contribution to a person's health status. The rapidity of technology growth eases access to health information, this situation has to be balanced with good health literacy index. Several factors as generation, occupation, and education influence health literacy index. Many measuring tools have been developed to assess the health literacy index. Researcher uses the latest health literacy survey questionnaire in Indonesia, namely HLS-EU-SQ10-IDN which contains 10 questions. This type of research is analytic observational. The research was conducted in the work area of the Jagapura Primary Health Care, Gegesik Subdistrict, Cirebon Regency, West Java. A total of 146 people that spread over five village is taken as samples with purposive sampling method. The results of Chi Square analysis is the association between generation and health literacy index showed insignificant results with p *= 0.705. For the correlation with work, the results are also insignificant with* p *= 0.296. Meanwhile, education level is associated significantly with* p *= 0.018. The data obtained indicate that there is no significant correlation between generational differences and the health literacy index. Older generation with higher educational background tends to have better health literacy index. On the other hand, the researchers suggest that government need a strategy to increase the quantity and quality of education in Indonesia as an endeavor to increase health literacy index in our society.*

Keywords*: health literacy index, generation, education, occupation*

Introduction

Health literacy represents personal knowledge and ability that makes people understand and accessible towards healthcare, thus they can make appropriate decision for their own health (World Health Organization, 2022). Health literacy competency is nurtured from knowledge, competency, and a set of skills (functional-interactive-critical) (Liu et al., 2020).

Health literacy has skills set divided into three parts. First, functional health literacy which focuses on reading and writing skills. Second, communicative health literacy which is used to apply information to influence the environment. The third is critical health literacy which is the ability to analyze information effectively and control a person's health status (Furuya et al., 2015).

Health literacy plays a key role in improving individual health and reducing health disparities in society (Duong et al., 2017). Technology is growing rapidly, facilitates the traffic of abundance information, including the health sector. However, this convenience must be complemented by the ability to sort information in order to support a good health literacy index. (Furuya et al., 2015)

According to the results of the 2020 Population Census released by the Central Bureau of Statistics (2021), the adult population in Indonesia is diversified into four generations, namely Baby Boomers (1946 – 1964), Generation X (1965 – 1980), Generation Y/Millennials (1981 – 1996), and Generation Z (1997 – 2012). Each generation has different characteristics: preferences for types of work and the social environment as a place to grow. This difference becomes factor that underlies the mindset and decision-making patterns of each individual (Arslan et al., 2016).The same pattern was also found in health literacy. Aguilar-Palacio et al (2018) conducted a study in Europe to see the relationship between generations with the health literacy index, the result is Baby Boomer generation has the lowest health literacy index.

The low health literacy index in Baby Boomer is due to the lack of generation adaptability to technological developments. Baby Boomer makes technology only as a life aid but does not make more efforts to keep up with technological developments. (Kiser & Washington, 2015)

As the urgency of health literacy increases, now a lot of research has been done related to it. The current health literacy index measurement has increased in accuracy when compared to the early days. Various questionnaires and measuring tools have been developed to assess health literacy indicators. Among them are TOFHLA (Test of Functional Health Literacy in Adults), used to assess respondents' understanding of health information; REALM (Rapid Estimate of Adult Literacy in Medicine), a measuring tool that assesses respondents' ability to read health terms; NVS (Newest Vital Sign); FCCHL (Functional Communicative and Critical Health Literacy); 2009 Chinese Health Literacy Questionnaire; and the Mandarin Health Literacy Scale in Taiwan. The problem is, this measuring tool has not been able to assess health literacy comprehensively. (Duong et al., 2017)

Jagapura is an area in Cirebon Regency with the total population of 30.258 people and is the outermost area of Cirebon. This condition makes Jagapura becomes frontier between Cirebon and Indramayu Regency. According to the researcher's observation, has a far distance from the two cities. From google maps we know the distance from Jagapura is 30,9 kilometers and 39,7 kilometers to Indramayu and Cirebon city respectively. Besides that, exposure of technology in Jagapura is not as massive as urban society, so health information that spreads in the society is not too much.

Healthcare facility in Jagapura is still limited. There are Jagapura Primary Healthcare as the center of healthcare facility, and several independent practices of midwives and nurses within every village. It could be considered that healthcare in Jagapura depends on Jagapura Primary Healthcare. Furthermore, maternal and child mortality rates for five years from 2016-2021 is zero, this shows that the health in Jagapura is relatively good. This phenomenon makes Jagapura's society interesting to be analyzed about their health literacy.

Methods

This research is an observational study with a cross sectional method conducted in the work area of the Jagapura Health Center, Gegesik Subdistrict, Cirebon District, West Java. The area of population was chosen based on its location which is categorized as rural and suburban area.

The population of this study is people aged 18-60 years who live in the work area of the Jagapura Health Center in July 2021 with purposive sampling method. The number of samples involved were 146 people. We use this sampling method, because we need people who varies in age, educational level, and occupation. So we did the sampling by giving questionnaire to the people who came to Jagapura Primary Healthcare, Integrated Healthcare Center, and several vaccination services. From those three places, we can obtain their age, educational level, and occupation as the data we need in this research. We hope to get more significant results from the research.

The first comprehensive measuring instrument used to measure health literacy in the population is the HLS-EU-47, a questionnaire containing 47 questions with answers are given on a Likert scale of 1-4. The HLS EU 47 is the first questionnaire used to assess health literacy in Europe. Then this questionnaire was adapted and validated for use in 6 regions in Asia: Indonesia, Malaysia, Myanmar, Singapore, and Taiwan (Duong et al., 2017). After simplification and validation, the questionnaire has now developed into HLS-EU-Q16 (Nurjanah & Mubarokah, 2019), then updated again to HLS-SF12 (Duong et al., 2019). Currently, the latest health literacy survey questionnaire in Indonesia has been developed, namely the HLS-EU-SQ10-IDN which is a questionnaire containing 10 questions (Rachmani et al., 2019). So the data used in this study is primary data from the results of filling out the HLS-EU-SF10-IDN questionnaire.

HLS-EU-SQ10-IDN questionnaire was based on study that has been done by AHLA Indonesia Universitas Dian Nuswantoro Office. This questionnaire is Indonesia's short health survey questionnaire that contains 10 questions with the sensitivity reach almost as high as the 16 questions version. This questionnaire is chosen because it has been examined in Indonesia, and the number of questions is not too many, therefore this will be effective to be applied to the society in rural area. In this study, the sample was selected according to the criteria and then grouped into three variables. Generation variables are categorized into four: Baby Boomers, Generation X, Generation Y/Millennials, and Generation Z. Educational variables are categorized into: elementary school, junior high school, and senior high school/college. Job variables are categorized into: housewives, employees, and entrepreneurs. The sample was asked to fill out a questionnaire.

According to HLS-EU-SQ10-IDN guideline, the questionnaire contains 10 points of questions. Each of them is answered using Likert scale, representing respondent's difficulty stages in understanding and applying health information. The score from every question will be summed and entered into this formula:

Gen-HL = (((Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8+ Q9 + Q10)/10)-1)*50/3

From that formula, the scores are calculated and we will obtain health literacy index, categorized into 4 levels as seen in Table 1

Table 1. Health Literacy Index Categorization

Health Literacy Index	Status
0-25	Inadequate
>25-33	Problematic
>33-42	Sufficient
>43-50	Excellent

The data obtained were then analyzed using Chi Square statistical test with IBM SPSS Statistics. The degree of significance used was $p < 0.05$. This research was approved by the Ethics Committee of the Faculty of Public Health, University of Jember with ethical approval no. 60/KEPK/FKM-UNEJ/VI/2021 and follow the ethical guidelines of the Council for International Organization of Medical Sciences (CIOMS) 2016.

Results

A total of 146 respondents have been divided in detail into several categories, as shown in Table 1. Respondents were asked to fill out a questionnaire containing 10 questions.

If the respondent has difficulty in understanding the contents of the questionnaire, the researcher will help explain the purpose of the question.

Respondent data that has been obtained through the HLS-EU-SG-Q10 questionnaire is then analyzed using the Chi Square Test and the results are as described in tables 2, 3, and 4. The results of the questionnaire are in the form of a literacy index that describes the understanding, mindset, and decision making of respondents regarding their health. The following will describe the results of the research that has been carried out.

The table above shows that respondents classified as the millennial generation, high school and college, and the housewife is the largest population in their respective categories.

In Table 3, the results of the health literacy questionnaire based on generational differences are presented. We can see that the health literacy index in the excellent category is mostly obtained by generation X and millennials. However, the most inadequate results are also obtained by the millennial generation. Meanwhile, in the Baby Boomer generation, the largest percentage of the health literacy index is in the problematic and inadequate categories. From the Chi Square analysis, it was found that the difference in generation had no significant impact on the health literacy index with $p = 0.705$.

Table 2. Sample distribution by generation, education level, and occupation

Variable	F	%
Generation		
Baby Boomer	9	6,16
Generation X	45	30,82
Millenial	76	52,05
Generation Z	16	10,97
Education		
Elementary School	43	29,45
Junior High School	47	32,19
Senior High School or College	56	38,36
Occupation		
Housewives	118	80,82
Employee	13	8,9
Enterpreneur	15	10,28

Table 3. Relationship between Health Literacy Index and Generational Difference

Generation	Excellent (%)	Sufficient (%)	Problematic (%)	Inadequate (%)	Total
Baby Boomer	1	2	3	3	9
	(11,11)	(22,22)	(33,33)	(33,33)	
Generation X	6	23	9	7	45
	(13,33)	(51,11)	(20)	(15,56)	
Millenial	6	36	21	13	76
	(7,89)	(47,37)	(27,63)	(17,11)	
Generation Z	0	8	5	3	16
	(0)	(50)	(31,25)	(18,75)	

Table 4. Relationship between Health Literacy Index and Type of Work

Occupation	Excellent (%)	Sufficient (%)	Problematic (%)	Inadequate (%)	Total
Housewives	8	54	33	23	118
	(6,78)	(45,76)	(27,97)	(19,49)	
Employee	3	7	1	2	13
	(23,07)	(53)	(7,69)	(15,38)	
Enterpreneur	2	8	4	1	15
	(13,33)	(53,3)	(26,67)	(6,67)	

Table 5. Relationship between Health Literacy Index and Education Level

Education	Excellent (%)	Sufficient (%)	Problematic (%)	Inadequate (%)	Total
Elementary School	6	16	9	12	43
	(13,95)	(37,21)	(20,93)	(27,90)	
Junior High School	4	17	17	9	47
	(8,51)	(36,17)	(36,17)	(19,15)	
Senior High School or College	3	36	12	5	56
	(5,36)	(64,29)	(21,42)	(8,92)	

Table 4 is the result of the health literacy questionnaire based on different types of work. It appears that the health literacy index in the excellent and sufficient categories is obtained by housewives. In the variety of occupations, the largest percentage of the health literacy index is obtained in the sufficient category. From the Chi Square analysis, it was found that the difference in the type of work had no significant impact on the health literacy index with p = 0.296.

Finally, Table 5 is the result of a health literacy questionnaire based on different levels of education. We can see that the health literacy index in the excellent category is obtained by the elementary education level. However, the most inadequate results were also achieved by this category. Meanwhile, the highest number and percentage in the sufficient category were obtained by senior high school or college. From the Chi Square analysis, it was found that the difference in education level had a significant impact on the health literacy index with p = 0.018

Discussion

A study in Denmark states that older adults were prone to low health literacy, so they become fragile population to low health outcomes too. Many older adults live alone without family. Besides that, older adults also find difficulties to access health system because of their complex chronical disease. (Harbour & Grealish, 2018)

But in this recent study, it was found that the impact of generational differences on the health literacy index was not significant. This is different from the results of a previous study conducted in Europe by Aguilar-Palacio et al (2018), where generational differences are significantly related to the health literacy index.

Santosa & Pratomo (2021) in their research on the factors that affect the health literacy index stated that there was no significant relationship between age and occupation with the health literacy index. This is in line with the results in this study, which found that the generation and type of work did not significantly affect the health literacy index.

Researchers got significant results with p <0.05 on the Chi Square test when looking at the relationship between literacy index and education. This is consistent with research conducted in Europe (Sørensen et al., 2015), Japan (Furuya et al., 2015), and China (Y.-B. Liu et al., 2015). The higher the level of education, the higher the health literacy index in the community is. A study in China illustrates that research subjects with an age range above 60 years (Baby Boomer generation) will have a health literacy index that varies depending on their level of education. The higher the level of education, the higher the health literacy index people may have. (Xie et al., 2019)

The higher the education level, the individual functional health literacy index value will increase. Individuals with low levels of education will usually have problems understanding and evaluating health information so they tend to have a low health literacy index. (Joveini et al., 2019)

A systematic review comparing several researches on health literacy explained that there are five demographic variables that are often evaluated in the literature. The five variables are education, race, gender, age, and total income. From the five variables, the most consistently evaluated variable in each research is the education factor. The educational factor is also

proven having an effect on the health literacy index in five of the six studies reviewed in the systematic review (Chesser et al., 2016). Research by Gomes da Silva et al (2021) also concludes education as a strong predictor factor of health literacy level.

Meanwhile, the results of the research in the work area of the Jagapura Primary Health Care show that the percentage of the health literacy index that is categorized as problematic and inadequate is still quite large and becomes a concern that it will have an impact on individual decisions regarding health. Low health literacy drives people becoming confused while deciding important decision for their diseases. For example, they cannot differ which condition would need primary care or emergency unit. This affects on increment of finance and social burden within healthcare system. (Hickey et al., 2018)

According to Joveini et al (2019), the solution that can be done to overcome the problem of health literacy is planning educational interventions in order to increase the health literacy index. This research indicates the government needs to increase the quantity and quality of education in Indonesia, because it is related closely with the quality of public health. Education should be an aspect that is considered in every health promotion effort.

Another research also gave similar recommendations. They recommend to increase educational level and literacy as an effort to change health literacy index in society to a positive direction. Moreover, future health education and health promotion activities should be reinforced too. (Long et al., 2022)

Conclusion

Education is related to the level of health literacy index. Meanwhile, the differences between generations and types of work do not have a significant impact. The older generation with a high level of education will still have a good literacy index.

In several studies the relationship between age and occupation with health literacy index varied in results. However, the education factor is always consistent associated with the health literacy index in each study. Thus, education has become the main determinant factor that determines the level of a person's health literacy index.

Based on this research, there is a great chance of to increase the health literacy index by optimizing education. In contrast to the factor of generation difference which is difficult to intervene. This condition indicates the need for the government to encourage a multidimensional role to improve the health literacy index of Indonesian, in the midst of an overflow of health information with inadequate sources. Attitudes and behaviors of health nurtured during childhood affects adult health patterns. When children are educated, they become knowledgeable and critical to health information and they can make health decisions appropriately. World Health Organization (2022) support and strongly recommend high formal education level to make a positive change of health literacy in society.

Further research is needed as a reference material for health systems and programs which are expected to be more strategic.

Conflict of Interest

The authors state that there is no conflict of interest in this study.

Acknowledgement

The researcher expresses her deepest gratitude to AHLA Indonesia for providing access to the HLS-EU-SF10-IDN questionnaire, so that researchers can contribute to the study entitled health literacy.

Author contribution

First author contributed on design of the study, data collection, and wrote the first draft of the manuscript. Second author contributed for finding resources and reviewing the manuscript. All authors reviewed the manuscript and approved submitted version.

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