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Analysis Of Determinants Of Digital Health Literacy Among Mothers Pregnancy: A Study In Semarang City

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Abstract

Pregnancy is a period that requires intensive health monitoring. Digital Health Literacy (DHL) is a key factor for pregnant women in searching for, understanding, and applying health information from electronic sources. In reality, not all women can understand DHL. This study aims to identify the factors associated with DHL among pregnant women in Semarang City. The study design was cross-sectional, with data collected through stratified random sampling from 15 public health centers (puskesmas) in Semarang City, yielding a sample of 390. The instrument used was the Digital Health Literacy for Citizens (DHLC) questionnaire, which was administered directly to the respondents. Independent variables included: age, education, income, occupation, antenatal care (ANC) visits, access to health information, and parity. The dependent variable was Digital Health Literacy. Data were analyzed using Kruskal-Wallis and Mann-Whitney tests. Results: The majority of pregnant women had an independent level of DHL (74.6%), were over 24 years old, had a moderate level of education (57.4%), were housewives (58.5%), accessed health information from health workers (74.1%), were multiparous (41.8%), and had ≥3 ANC visits. Education, income, occupation, access to health information, and parity were significantly associated with DHL (P = 0.000).

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Introduction

Digital Health Literacy (e-health literacy). Health literacy is the ability to search for, find, understand, and evaluate health information from electronic sources and apply the knowledge gained to address or solve health problems (Seidel Elizabeth, MSW, Cortes Tara, FAAN, 2023). Health literacy is the knowledge and skills acquired through daily activities, social interactions, and intergenerational experiences (World Health Organization, 2013). Digital Health Literacy is very important for community groups who need accurate and fast health information, one of which is pregnant women, because in this phase, behavior affects the health of the mother and fetus. During pregnancy, mothers are confronted with various health information from various sources (Song et al., 2012). Pregnancy is a transitional time, namely a period in life before having a child, which initially occurs in the womb. In the womb and the child's life after birth. This radical change in status is considered a crisis, accompanied by a period of psychological preparation that usually begins during pregnancy and reaches its peak at the time of the baby's birth. Benefits of Digital Health Literacy for pregnant

women include increased knowledge and understanding, reduced stress and fatigue during pregnancy, and reduced unhappiness during pregnancy (Wijhati et al., 2022). Based on previous research by Siti Nuraini Irwan et al., a significant relationship was found between health literacy and self-care in pregnant women. Self-care for pregnant women is like taking care of yourself to stay healthy and happy during pregnancy. Doing self-care activities such as prenatal yoga, eating nutritious foods, and ensuring adequate rest provides a good nutritional environment for fetal growth (Irwan et al., 2024).

Low impact digital health literacy will have an impact on health status, such as not understanding the therapy given by health workers, making mistakes regarding drug labels and dosages, and not complying with the treatment being carried out (Fadhilah Gani et al., 2022). Pregnant women who have Digital Health Literacy. Women with low health literacy may find it very difficult to obtain new information or receive guidance. This lack of understanding of healthcare makes decision-making difficult, which can negatively impact their fetus (Solhi et al., 2019). A case study in Gowa Regency showed that pregnant women with low health literacy often failed to understand medical instructions from health workers. In one case, a pregnant woman was unaware of the importance of taking folic acid during pregnancy due to a lack of understanding of its benefits. As a result, she skipped the supplement and experienced complications that affected fetal development (Irwan et al., 2024).

Research results in developed countries show that Digital Health Literacy in pregnant women is relatively higher, indicated by their better health outcomes (Yuen et al., 2024). In Denmark, for example, women of descent and immigrants have lower rates of Digital Health Literacy than that of indigenous women, potentially impacting poor birth outcomes and indicating the need for structural efforts to reduce health disparities (Villadsen et al., 2020). In Türkiye, the Digital Health Literacy in pregnant women is relatively high (Keles et al., 2024). In Indonesia, the rate of digital literacy is an average of 3.54 out of 5.00, which is considered to be in the moderate category (Kominfo, 2024). In Semarang City, the level of health literacy among pregnant women is still relatively low due to the lack of intensive health promotion and education to increase health literacy among pregnant women (Sri Handayani, 2019). For example, in Tambakrejo Village, health literacy among pregnant women related to the high maternal and child mortality rate due to preeclampsia is also still lacking, especially in understanding the importance of a healthy lifestyle, good nutrition, and prenatal check-ups as a preventative measure (Wulan et al., 2024). In South Sulawesi province, the level of Digital Health Literacy was still low in pregnant women pre-education through videos and WhatsApp groups, but after being given education, the literacy rate experienced a significant increase (Ainun Jariah, Fitri H.Sudiamin, Syahridayanti, Arlianti, 2024).

Factors related to Digital Health Literacy very diverse. Education and knowledge about pregnancy are the main determinants of digital health literacy, with mothers who are more educated and have greater knowledge showing higher levels of digital health literacy. Previous research has shown significant relationships among several factors, including age, education, access to health information, and parity. All of these factors are highly relevant to pregnant women's health literacy, indicating that they interact and shape their understanding of digital health information. (Ainun Jariah, Fitri H.Sudiamin, Syahridayanti, Arlianti, 2024). According to Tutik Wahyuningsih, the factors that influence digital health literacy are age, education, and occupation (Wahyuningsih, 2022). Research conducted by Marta Estrela et al that Higher education levels and income have a positive impact on pregnant women's digital health literacy (Estrela et al., 2023). According to research by Lori et al., pregnant women who participated in group antenatal care (health check-ups) had better health literacy than those who participated in individual care because they had a better understanding of how to apply health information (Lori et al., 2017).

Semarang City is the capital of Central Java and has good access to digital technology. Digital Health Literacy is very important for pregnant women to increase their knowledge and understanding, reduce stress and fatigue, and reduce unhappiness during pregnancy. However, in the city of Semarang, the prevalence of digital health literacy in pregnant women remains relatively low due to a lack of intensive health promotion and education for pregnant women. It is still unknown what causal factors are associated with mothers' digital health literacy levels during pregnancy in this city (Sri Handayani, 2019). Age, education, access to health information, parity, income, knowledge, employment, and antenatal care factors all show strong relevance to Digital Health Literacy in pregnant women. By conducting research that focuses on these factors, it is hoped that a deeper understanding can be gained of how to improve Digital Health Literacy more effectively among pregnant women, as well as insights into how digital health application technology can contribute to improving maternal and child health. The aim of this study was to analyze the determinants of Digital Health Literacy in pregnant women in the city of Semarang.

Methods

This research uses a quantitative method with an analytical design through an approach. Cross-sectional. This research was conducted in Semarang City from January to March 2025. The population in this study was pregnant women in Semarang City. The location was determined using stratified random sampling, selecting 37 community health centers in Semarang City. The sample size was determined using the Isaac and Michael table, with a 95% confidence level and a 5% margin of error. According to the Semarang City Profile, the number of pregnant women in 2023 was 21,375. The calculation results show that the minimum sample size is 344 people. In this study, the total sample size was 390 people from 15 community health centers (each community health center contributed approximately 26 respondents).

Dependent variables include Age, Education Level, Parity, Income, Occupation, Access to Health Information, and Antenatal Care. The independent variable is Digital Health Literacy. The research instrument used a list of questions in the form of a questionnaire. This study used the Digital Health Literacy for Citizens (DHLC) questionnaire by Rachmani et al., which has been translated into Indonesian. The DHLC questionnaire has 18 indicators with 26 questions related to activities in the digital environment with a range of response competencies: unable (0), very difficult to do and needs guidance (1), difficult to do and needs guidance (2), easy to do but still needs guidance (3), easy without guidance (4), easy to help others (5), very easy if there are no problems (6), very easy to solve problems (7). The questionnaire has been tested for validity and reliability; the results indicate that it is valid and reliable.

Data collection was carried out through structured interviews conducted directly with respondents. The data processing in this study included Editing, Coding, Data Processing/Entry, and Data Cleaning. Data were analyzed univariately to describe the frequencies of variables in percentages. Bivariate analysis to determine the relationship between variables used the ANOVA test, the unpaired T-test, and the Kruskal-Wallis test.

Results

The following table presents respondent characteristics which illustrates the distribution of data to represent respondents in filling out the questionnaire, as shown in Table 1.

Table 1. Respondent Characteristics (n= 390)

Variables		Frequency	Percentage (%)
Age			
	<19 yo	9	2.3
	19-24 yo	83	21.3
	>24 yo	298	76.4
Education			
	Elemenary	65	16.7
	Middle	224	57.4
	College	101	25.9
Income			
	< Regional Minimum Wage	142	36.3
	≥ Regional Minimum Wage	248	63.6
Work			
	Housewife	228	58.5
	Privat sector employee	134	34.4
	Businessman	21	5.4
	Civil Servant labour	6	1.5
	Blue-collar worker	1	0.3
Acces to health information			
	Health worker	289	74.1
	Social media	98	25.1
	Print media	2	0.5
	Electronic media	1	0.3

Variables	Frequency	Percentage (%)
Parity		
Primipara	157	40.3
Multipara	163	41.8
Grandmultipara	70	17.9
Antenatal care		
1-2 times	77	19.7
≥ 3 times	313	80.3

Based on the data classification results, the majority of respondents in this study were pregnant women aged >24 years (76.4%), with secondary education (high school) at 57.4%, and income ≥ UMR (63.6%). Most respondents worked as housewives (58.5%). In terms of access to health information, health workers were the main source (74.1%), followed by social media (25.1%). Respondents' parity was dominated by mothers with a history of multiparous pregnancies (41.8%), and most had undergone≥3 antenatal check-ups (80.3%). These findings indicate that the demographic characteristics and access to health information of respondents tended to be concentrated in the adult age group, secondary education, and information sourced from health workers.

The frequency and percentage distribution of each category can be seen in Table 2 below

Table 2. Frequency Distribution Digital Health Literacy

Digital Health Literacy	Frequency	Percentage (%)
Beginner	74	19.0
Independent	291	74.6
Advance	8	2.1
Expert	17	4.4

Table 2 shows the distribution of digital health literacy levels among 390 respondents. The majority of respondents are independent, as many as 291 people (74.6%), indicating that almost half of the population has low digital health literacy skills. As many as 74 people (19.0%) are at the digital health literacy level. Beginner followed by 8 people (2.1%) at the level, and 17 people (4.4%) were classified as experts, while some individuals have reached advanced levels, a large proportion of respondents are at the beginner and independent levels, highlighting the need for increased digital competency in healthcare for the population.

Table 3 Relationship between age, education, occupation, income, access to health information, parity, and ANC on digital health literacy.

Variables		Frequency	P-Value
Age			
	<19 yo	9	
	19-24 yo	83	0.451
	>24 yo	298	
Education			
	Elemenary	65	
	Middle	224	0.000
	College	101	
Income			
	< Regional Minimum Wage	142	0.000
	≥ Regional Minimum Wage	248	
Work			
	Housewife	228	
	Privat sector employee	134	0.000
	Businessman	21	
	Civil Servant labour	6	

Variables	Frequency	P-Value
Blue-collar worker	1	
Acces to health information		
Health worker	289	
Social media	98	0.000
Print media	2	
Electronic media	1	
Parity		
Primipara	157	
Multipara	163	0.000
Grandmultipara	70	
Antenatal care		
1-2 times	77	0.161
≥ 3 times	313	

Significant at p-value <0.05

Table 3 shows a highly significant relationship among the variables of education level, income, employment, access to health information, and parity with digital health literacy (p-value < 0.000).

Discussion

This study provides a comprehensive overview of the level of digital health literacy (DHL) among pregnant women in Semarang City. Most respondents (74.6%) were in the independent category. (Independent), demonstrated basic to intermediate skills in accessing and utilizing digital health information. However, 19.0% of respondents were still at the Beginner level (Beginner), while the groups Advanced and Expert were still small (2.1% and 4.4%, respectively). Respondents demonstrated a good ability to find and understand health information, particularly in distinguishing between correct information (39.0%). This finding indicates good critical awareness, although in-depth development of information evaluation skills is still needed to improve the digital competence of pregnant women across the board.

The Kruskal-Wallis test results showed no significant relationship between age and digital health literacy (p=0.451). This study is similar to previous research conducted by Kavit, which stated that older respondents, if they are involved in the learning process and have a habit of accessing information by visiting health services and actively asking health workers, will have a literacy level equal to the average, or even better (Anja Ahul Alaiha Kavit et al., 2022). Although older age is often assumed to be associated with lower digital literacy, field findings show the opposite: experience and direct interaction with health workers encourage multiparous pregnant women to seek health information independently via the internet. Previous pregnancy experience is an important factor in improving digital health literacy, although age background and technology habits vary (Neter, E., Brainin, 2019). Therefore, it can be concluded that older respondents with prior pregnancy experience are highly motivated to improve their digital health literacy. This suggests that their digital health literacy is not low but is even equivalent to or exceeds that of adults, perhaps even exceeding that of younger respondents. Furthermore, respondents in this study were relatively homogeneous in age, so there was no large age gap between the younger and older age groups.

In this study, parity was significantly associated with health literacy. This finding emphasizes that prior pregnancy experiences significantly influence pregnant women's ability to use digital technology to obtain health information. The majority of respondents in this study were multiparous (41.8%). Pregnant women with more than one childbirth experience tend to have a better understanding of the importance of health information and how to find it digitally. This is supported by respondents' answers to the statement: "I know how to search for useful health information on the Internet," where the majority responded, "easily without assistance" (31.3%). This indicates that practical experience from previous pregnancies helps them access and utilize digital health information more effectively. The findings of this study also reinforce previous research showing that parity is significantly associated with health literacy among pregnant women (Lagan et al., 2011). Parity also affects pregnant women's ability to access and use health information online (Mackert et al., 2016).

These results indicate that income significantly influences pregnant women's ability to use digital technology to obtain health information. This can be seen from respondents' answers to the questionnaire.

Digital Health Literacy. Among citizens, the majority of respondents were those with incomes at or above the minimum wage, totaling 248 people. Income affects pregnant women's ability to access digital health technology and information. Pregnant women with higher incomes have more resources to purchase digital devices and pay for internet services, making it easier for them to find health information. Conversely, pregnant women with low incomes may face limited access to technology, potentially hindering their literacy (Acquavita et al., 2019).

This study demonstrates that occupation is significantly associated with digital health literacy among pregnant women. The findings indicate that occupation type significantly influences pregnant women's ability to use digital technology to obtain health information. These results are consistent with a previous study by Wahyuningsih (Wahyuningsih, 2022). Having an occupation can affect a person's ability to access healthcare services, including health information, thereby improving their health literacy (Jovic-Vranes et al., 2009). However, this study differs in that the majority of respondents were housewives (228 participants). Nevertheless, 25.5% of the total respondents were able to use commonly used chat applications (WhatsApp, Facebook, Line) to share materials (messages, files, images, links) with other group members without assistance. This is likely due to several factors that influence an individual's digital literacy improvement besides occupation, such as prior experience using digital technology (Neter, E., Brainin, 2019).

The results of this study indicate a significant relationship between access to health information and digital health literacy. These findings are consistent with Respati's research, which showed an increase in postpartum care health literacy among groups receiving online education, both mothers and their partners (Wulandari et al., 2022), as well as health cadres (Wulandari et al., 2024). Health literacy related to hypertension also improved following digital consultation, information, and education interventions (Wulandari & Sifai, 2025). The majority of respondents in this study identified healthcare professionals as their primary source of health information. This preference is likely driven by their level of trust in professional healthcare providers and the perceived quality of the information provided. This finding underscores the importance of digital health literacy, as pregnant women tend to seek information from credible sources, thereby enhancing their understanding and ability to use technology to obtain accurate health information.

The findings of this study indicate that ANC is not related to digital health literacy. This means that ANC history does not determine a pregnant woman's ability to use digital technology to obtain pregnancy-related health information. More frequent ANC visits do not automatically mean higher digital health literacy, and vice versa. It is also possible that pregnant women with low ANC attendance but high motivation to seek pregnancy information online can improve their digital health literacy. Motivation plays a crucial role in determining everyone's digital literacy level (Norman & Skinner, 2006).

Conclusion

The findings of this study indicate that almost all the variables examined (education, income, occupation, access to health information, and parity) are associated with digital health literacy among pregnant women. These findings also reinforce previous research on factors associated with digital health literacy among pregnant women.

Author Contributions

SM contributed to the research idea, methodology, data collection, analysis, writing, and translation of the article. RW provided direction and guidance from the beginning to the end of the research. RW also contributed to the article's writing and internal review.

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Institutional Review Board Statement

This study has obtained ethical clearance from the Ethics Committee of Universitas Dian Nuswantoro, with letter number: 000130/DIAN NUSWANTORO UNIVERSITY/2025.

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Conflicts of Interest:

All authors declare that there are no conflicts of interest.

References

Acquavita, S. P., Krummel, D. A., Talks, A., Cobb, A., & McClure, E. (2019). Assessing the Digital Divide Among Low-Income Perinatal Women: Opportunities for Provision of Health Information and Counseling. *Telemedicine Journal and E-Health : The Official Journal of the American Telemedicine Association*, *25*(1), 48–54. https://doi.org/10.1089/tmj.2017.0292

Ainun Jariah, Fitri H.Sudiamin, Syahridayanti, Arlianti, A. (2024). Factors influencing literacy digital health in pregnant women in the Moncongloe Community Health Center area. *Afiasi: Jurnal Kesehatan Masyarakat*, *9*(2), 165–178.

Anja Ahul Alaiha Kavit, M., Dharminto, Tri Purnami, C., & Agushybana, F. (2022). Hubungan Faktor Demografi dengan Literasi Kesehatan tentang Penyakit tidak Menular pada Lansia. *Jurnal Manajemen Kesehatan Indonesia*, *10*(2), 95–105.

Estrela, M., Semedo, G., Roque, F., Ferreira, P. L., & Herdeiro, M. T. (2023). Sociodemographic determinants of digital health literacy: A systematic review and meta-analysis. *International Journal of Medical Informatics*, *177*, 105124. https://doi.org/10.1016/j.ijmedinf.2023.105124

Fadhilah Gani, N., Nurhidayah, & Hasnah. (2022). Edukasi Model Proceed-Precede untuk Meningkatkan Health Literacy Ibu Hamil di Puskesmas Bajeng, Gowa. *Penelitian Kesehatan Suara Forikes*, *13 Nomor 2*(April), 323–329.

Irwan, S. N., Gani, N. F., Hafid, M. A., Hasnah, & Mubarak. (2024). Hubungan Health Literacy dengan Self Care pada Ibu Hamil di Wilayah Puskesmas Samata Gowa. *Jurnal Media Keperawatan: Politeknik Kesehatan Makassar*, *15*(1), 83–90.

Jovic-Vranes, A., Bjegovic-Mikanovic, V., & Marinkovic, J. (2009). Functional health literacy among primary health-care patients: data from the Belgrade pilot study. *Journal of Public Health (Oxford, England)*, *31*(4), 490–495. https://doi.org/10.1093/pubmed/fdp049

Keles, E., Kaya, L., Yakşi, N., Kaya, Z., & Kumru, P. (2024). Effects of eHealth literacy on maternal and neonatal outcomes. *Women & Health*, *64*(10), 829–838. https://doi.org/10.1080/03630242.2024.2420211

Kominfo. (2024). *Kominfo Says Over 24mn Participates in Digital Literacy Program Throughout 2017-2023*. https://britcham.or.id/kominfo-says-over-24mn-participates-in-digital-literacy-program-throughout-2017-2023/#:~:text=Vice Minister of Communication and,to the end of 2023.

Lagan, B. M., Sinclair, M., & Kernohan, W. G. (2011). What is the impact of the Internet on decision-making in pregnancy? A global study. *Birth (Berkeley, Calif.)*, *38*(4), 336–345. https://doi.org/10.1111/j.1523-536X.2011.00488.x

Lori, J. R., Ofosu-Darkwah, H., Boyd, C. J., Banerjee, T., & Adanu, R. M. K. (2017). Improving health literacy through group antenatal care: a prospective cohort study. *BMC Pregnancy and Childbirth*, *17*(1), 228. https://doi.org/10.1186/s12884-017-1414-5

Mackert, M., Mabry-Flynn, A., Champlin, S., Donovan, E. E., & Pounders, K. (2016). Health Literacy and Health Information Technology Adoption: The Potential for a New Digital Divide. *J Med Internet Res*, *18*(10), e264. https://doi.org/10.2196/jmir.6349

Neter, E., Brainin, E. (2019). Association between health literacy, eHealth literacy, and health outcomes among patients with long-term conditions: A systematic review. *European Psychologist*, *24*(1), 68–81. https://doi.org/https://doi.org/10.1027/1016-9040/a000350

Norman, C. D., & Skinner, H. A. (2006). eHealth Literacy: Essential Skills for Consumer Health in a Networked World. *Journal of Medical Internet Research*, *8*(2), e9. https://doi.org/10.2196/jmir.8.2.e9

Seidel Elizabeth, MSW, Cortes Tara, FAAN, C. (2023). *Digital Health Literacy*. https://psnet.ahrq.gov/primer/digital-health-literacy

Solhi, M., Abbasi, K., Ebadi Fard Azar, F., & Hosseini, A. (2019). Effect of Health Literacy Education on Self-Care in Pregnant Women: A Randomized Controlled Clinical Trial. *International Journal of Community Based Nursing and Midwifery*, *7*(1), 2–12. https://doi.org/10.30476/IJCBNM.2019.40841

Song, Felicia Wu, West, Jennifer Ellis, Lundy, Lisa, & Smith Dahmen, Nicole. (2012). Women, Pregnancy, and Health Information Online: The Making of Informed Patients and Ideal Mothers. *Gender & Society*, *26*(5), 773–798. https://doi.org/10.1177/0891243212446336

Sri Handayani, K. M. (2019). *HEALTH LITERACY PADA IBU HAMIL DI WILAYAH KERJA PUSKESMAS KOTA SEMARANG*. https://ahla-indonesia.dinus.ac.id/2019/12/05/health-literacy-pada-ibu-hamil-di-wilayah-kerja-puskesmas-kota-semarang/

Villadsen, S. F., Hadi, H., Ismail, I., Osborne, R. H., Ekstrøm, C. T., & Kayser, L. (2020). ehealth literacy and

health literacy among immigrants and their descendants compared with women of Danish origin: a cross-sectional study using a multidimensional approach among pregnant women. *BMJ Open*, *10*(5), e037076. https://doi.org/10.1136/bmjopen-2020-037076

Wahyuningsih, T. (2022). Faktor- Faktor Yang Berpengaruh terhadap Literasi Kesehatan Masyarakat. *Journal of Innovation Research and Knowledge*, *2*(3), 891–898.

Wijhati, E. R., Subiyatun, S., & Istiyati, S. (2022). Program Kelas Ibu Online di Era Pandemi Covid-19. *Jurnal Pengabdian Masyarakat Progresif Humanis Brainstorming*, *5*(2), 248–253. https://doi.org/10.30591/japhb.v5i2.2905

Word Health Organization. (2013). *The Solid Fact Health Literacy* (F. A. & A. D. T. Ilona Kickbusch, Jürgen M. Pelikan (ed.)). WHO Regional Office for Europe.

Wulan, W. R., Widianawati, E., & Pantiawati, I. (2024). Optimalisasi Deteksi Dini Pre Eklampsia Ibu Hamil Berbasis Telehealth oleh Kader Forum Kesehatan Kelurahan Tambakrejo. *Jurnal Abdidas*, *1*(3), 131–136.

Wulandari, R., Aprianti, A., Anggaini, F., & Waluyo, D. E. (2024). Edukasi Perawatan Nifas Menggunakan Booklet pada Ibu Hamil dan Kader di Kelurahan Bojongsalaman Kota Semarang. *Abdimasku : Jurnal Pengabdian Masyarakat*, *7*(1), 69. https://doi.org/10.62411/ja.v7i1.1672

Wulandari, R., & Sifai, I. A. (2025). Digital Consultation, Information, and Education to Enhance Knowledge and Attitudes on Hypertension. *Jurnal Promosi Kesehatan Indonesia*, *20*(2), 109–115. https://doi.org/10.14710/jpki.20.2.109-115

Wulandari, R., Suwandono, A., Kartasurya, M. I., & Nugraheni, S. A. (2022). Postpartum Care Behavior Improvement during COVID-19 Pandemic in Indonesia Using Mobile-Health Interactive Message. *Ethiopian Journal of Health Sciences*, *32*(2), 243–254. https://doi.org/10.4314/ejhs.v32i2.4

Yuen, E., Winter, N., Savira, F., Huggins, C. E., Nguyen, L., Cooper, P., Peeters, A., Anderson, K., Bhoyroo, R., Crowe, S., & Ugalde, A. (2024). Digital Health Literacy and Its Association With Sociodemographic Characteristics, Health Resource Use, and Health Outcomes: Rapid Review. *Interactive Journal of Medical Research*, *13*, e46888. https://doi.org/10.2196/46888