Factors Influencing Healthtech Literacy: An Empirical Analysis of Socioeconomic, Demographic, Technological, and Health-Related Variables

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Abstract

The rapid evolution of technology in the healthcare industry has led to an increased emphasis on individuals' healthtech literacy. This study aimed to examine the impact of socioeconomic, demographic, technological, and health-related factors on healthtech literacy among a sample of 451 individuals. The study applied a multivariable regression model with Huber-White estimator to analyze the data. Healthtech literacy was the dependent variable, while the independent variables included socioeconomic factors, demographic factors, technological factors, and health-related factors. We used System Usability Scale (SUS) to measure the healthtech literacy. The findings revealed that all four factors significantly impacted healthtech literacy among the sample. This study highlights the importance of considering multiple factors when assessing healthtech literacy, as it is influenced by various factors. The findings can be useful in developing interventions aimed at improving healthtech literacy in different populations, particularly those who are less tech-savvy or who have lower levels of education or income. Future research could focus on developing targeted interventions that address specific factors associated with lower healthtech literacy.

Keywords: Demographic, Health-related factors, Healthtech literacy, Socioeconomic factors, Technological factors.

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Introduction

Healthtech, a term coined to describe the intersection of healthcare and technology, has been rapidly evolving and gaining traction in recent years. Healthtech encompasses a wide range of technologies, from electronic health records to telemedicine to wearable devices. These technologies are transforming the way healthcare is delivered and received, making it more accessible, efficient, and personalized. Healthtech is also driving innovation in medical research and drug development, enabling faster and more targeted treatments for a variety of diseases.

One of the key benefits of healthtech is improved access to healthcare, particularly for people in remote or underserved areas. Telemedicine, for example, allows patients to consult with doctors and specialists via video calls, reducing the need for travel and making healthcare more convenient and accessible. Wearable devices and mobile apps can also help people monitor their health and manage chronic conditions, such as diabetes or hypertension, from the

comfort of their own homes. These technologies have the potential to significantly improve health outcomes and reduce healthcare costs.

Another area where healthtech is making a significant impact is in medical research and drug development. Advances in genomics and machine learning are enabling researchers to develop more targeted and effective treatments for diseases. Electronic health records and big data analytics are also being used to identify patterns and trends in patient health, which can help researchers understand the underlying causes of diseases and develop more effective treatments. These technologies are accelerating the pace of medical innovation, bringing new drugs and therapies to market faster than ever before.

The development of healthtech has transformed the healthcare system, enabling individuals to monitor their health, access medical information, and receive remote medical care. However, the effectiveness of healthtech in improving health outcomes is dependent on the healthtech literacy of individuals. Healthtech literacy involves understanding how to use technology for health-related purposes, such as using health apps, telemedicine, and wearables. It also involves possessing a basic understanding of health concepts and having critical thinking skills to evaluate health information. Healthtech literacy is becoming increasingly important, especially as healthtech becomes more integrated into the healthcare system.

Healthtech literacy is essential for empowering patients to take control of their health. Patients who are healthtech literate can use healthtech tools to monitor their health, access medical information, and communicate with healthcare professionals. By being able to access information and communicate with healthcare professionals more easily, patients can make informed decisions about their health, leading to improved health outcomes. Healthtech literacy also plays a critical role in reducing health disparities, as it enables individuals to access health information and medical care regardless of their geographical location or socioeconomic status.

However, not everyone has the same level of healthtech literacy. There are disparities in healthtech literacy across different age groups, income levels, and educational backgrounds. This highlights the need for initiatives that promote healthtech literacy and bridge the digital divide. Healthcare organizations and policymakers should prioritize improving healthtech literacy through initiatives such as digital skills training, education campaigns, and funding for research on healthtech literacy. By improving healthtech literacy, individuals can better navigate the healthcare system, access medical information, and take control of their health, leading to better health outcomes.

The determinants of heathtech literacy

Socioeconomic factors:

Income level is an important factor that affects healthtech literacy. People with higher income levels tend to have better

access to technological devices and healthcare services, which can provide them with better opportunities to improve their healthtech literacy. For example, individuals with higher income levels can afford to purchase the latest healthcare technology, which can help them monitor their health and prevent diseases. Additionally, individuals with higher income levels can afford to enroll in healthcare programs that offer specialized training in healthtech, allowing them to better understand how to use healthtech tools to improve their health.

Education level is also an important factor that can impact healthtech literacy. Higher levels of education can provide individuals with better skills to understand and use healthtech tools and resources. For example, individuals with higher levels of education may have a better understanding of medical terminology, which can help them navigate healthtech resources more easily. Additionally, higher levels of education can equip individuals with the necessary critical thinking skills to evaluate the accuracy and reliability of healthtech resources.

Employment status is another factor that can impact healthtech literacy. People who are employed may have better access to health insurance and financial resources to invest in their healthtech literacy. For example, employers may offer their employees health insurance coverage that includes access to healthcare services and healthtech resources. Additionally, people who are employed may have the financial resources to invest in healthtech products and services that can improve their healthtech literacy.

Access to health insurance is also an important factor that can impact healthtech literacy. Health insurance coverage can allow individuals to access healthcare services and healthtech resources that can improve their health literacy. For example, people with health insurance can visit their doctors more frequently, which can provide them with opportunities to learn more about healthtech and how it can improve their health. Additionally, health insurance coverage can help individuals afford healthtech products and services that may not be otherwise affordable.

Geographic location is another factor that can impact healthtech literacy. People living in rural areas may have limited access to healthcare services and healthtech tools, which can impact their healthtech literacy. For example, individuals living in rural areas may have limited access to internet connectivity, making it difficult for them to access healthtech resources online. Additionally, healthcare facilities and healthtech providers may be limited in rural areas, which can make it difficult for individuals living in these areas to access healthtech products and services.

Demographic factors:

Demographic factors play an important role in healthtech literacy, which is the ability to use technology for health-related purposes. Age is one such factor, with older adults having lower levels of healthtech literacy. This is partly because they may be less familiar with technology or may feel uncomfortable using it. Research has shown that older adults tend to struggle with using healthtech tools, such as wearables and health tracking apps.

Table 1. Determinants of Healthtech Literacy

Factors	
Socioeconomic factors	
Income level	Individuals with higher income levels may have better access to technological devices and healthcare services, thus improving their healthtech literacy.
Education level	Higher levels of education may provide individuals with better skills to understand and use healthtech tools and resources.
Employment status	People who are employed may have better access to health insurance and financial resources to invest in their healthtech literacy.
Access to health insurance	Health insurance coverage can allow individuals to access healthcare services and healthtech resources that can improve their health literacy.
Geographic location	People living in rural areas may have limited access to healthcare services and healthtech tools, which can impact their healthtech literacy.
Demographic factors	
Age	Older adults may have lower levels of healthtech literacy due to less familiarity with technology or discomfort using it.
Gender	Women may have higher levels of healthtech literacy than men, as studies have shown that they tend to use healthtech tools more frequently.
Ethnicity	People from different ethnic backgrounds may have varying levels of healthtech literacy due to differences in access, cultural norms, and language barriers.
Language proficiency	People with limited proficiency in the language used by healthtech tools may have lower levels of healthtech literacy.
Disability status	People with disabilities may face challenges in using healthtech tools due to physical or cognitive limitations.
Technological factors	
Access to technology	People with access to technological devices such as smartphones, computers, and internet may have higher levels of healthtech literacy.
Familiarity with technology	People who are familiar with using technology may have higher levels of healthtech literacy.
Comfort level using technology	People who feel comfortable using technology may be more likely to use healthtech tools and resources to improve their health literacy.
Frequency of technology use	People who use technology frequently may be more likely to engage with healthtech tools and resources.
Availability of technical support	Having access to technical support can help individuals overcome challenges in using healthtech tools and resources.
Health-related factors	
Health literacy	People with higher levels of health literacy may be better able to understand and use healthtech tools and resources to improve their health.
Health status	People with chronic health conditions may have higher levels of healthtech literacy as they need to manage their health more closely.
Presence of chronic conditions	People with chronic conditions may use healthtech tools and resources more frequently to manage their health.
Use of healthcare services	People who use healthcare services frequently may be more familiar with healthtech tools and resources.
Trust in healthcare providers	People who trust their healthcare providers may be more likely to use healthtech tools and resources recommended by them.

Gender is another demographic factor that can impact healthtech literacy. Studies have shown that women tend to have higher levels of healthtech literacy than men. This may be due to the fact that women are more likely to use healthtech tools, such as pregnancy and fertility apps, than men. This gender difference in healthtech literacy underscores the importance of creating gender-inclusive healthtech tools that meet the needs of both men and women.

Ethnicity is another demographic factor that can influence healthtech literacy. People from different ethnic backgrounds may have varying levels of healthtech literacy due to differences in access, cultural norms, and language barriers. For instance, studies have found that African Americans and Hispanic Americans are less likely to use healthtech tools than White Americans. This may be due to a lack of access to technology or cultural beliefs that discourage the use of healthtech tools. Healthtech designers must take into account the needs and preferences of different ethnic groups in their designs to ensure that healthtech tools are accessible and relevant to all.

Language proficiency is also an important demographic factor in healthtech literacy. People with limited proficiency in the language used by healthtech tools may have lower levels of healthtech literacy. For example, non-native speakers of English may find it difficult to understand the language used in healthtech apps or websites, which can limit their ability to use these tools effectively. Healthtech designers must ensure that their tools are available in multiple languages to accommodate people with limited language proficiency.

Disability status is another important demographic factor that can impact healthtech literacy. People with disabilities may face challenges in using healthtech tools due to physical or cognitive limitations. For example, people with visual impairments may struggle with using apps that rely heavily on visuals or graphics. Similarly, people with cognitive impairments may find it difficult to navigate complex healthtech tools. To ensure that healthtech tools are accessible to people with disabilities, designers must consider universal design principles and ensure that their tools are compatible with assistive technologies.

Technological factors:

Technological factors play a significant role in shaping an individual's healthtech literacy. The access to technology, such as smartphones, computers, and internet, is a crucial factor that impacts an individual's ability to access healthtech tools and resources. People who have access to technological devices are more likely to have higher levels of healthtech literacy compared to those who do not have access. The lack of access to technology could create a digital divide, limiting the ability of some individuals to access healthtech resources, and reducing their healthtech literacy.

Familiarity with technology is another technological factor that impacts an individual's healthtech literacy. People who are familiar with using technology are more likely to have higher levels of healthtech literacy compared to those who are not. For

example, someone who is familiar with using mobile applications or online platforms may find it easier to navigate healthtech resources, such as health apps or telemedicine services, and understand how to use them.

Comfort level using technology is also an important factor that influences an individual's healthtech literacy. People who feel comfortable using technology may be more likely to use healthtech tools and resources to improve their health literacy. In contrast, those who are less comfortable using technology may find it difficult to access or use healthtech tools and resources, which may limit their ability to improve their health literacy.

Frequency of technology use is another significant factor that impacts an individual's healthtech literacy. People who use technology frequently may be more likely to engage with healthtech tools and resources. For example, individuals who regularly use mobile applications or social media platforms may find it easier to use healthtech resources such as health tracking apps, online patient communities, or digital health coaching programs.

Availability of technical support is another essential factor that influences an individual's healthtech literacy. Having access to technical support can help individuals overcome challenges in using healthtech tools and resources. For instance, some healthtech tools may require specific technical skills to use, and without proper guidance, individuals may find it difficult to use these resources. Therefore, having access to technical support can help

individuals overcome these barriers and improve their healthtech literacy.

Another factor that impacts an individual's healthtech literacy is the availability of affordable and reliable internet connectivity. The internet is a crucial tool for accessing healthtech resources, and individuals who do not have affordable and reliable internet access may face challenges in accessing and using healthtech tools and resources. Therefore, improving internet connectivity in underserved communities can help bridge the digital divide and improve healthtech literacy.

Health-related factors:

In this context, health literacy not only involves an individual's ability to read and understand health-related information but also the capacity to use technology to access and engage with healthtech resources. Healthtech tools require a certain level of technical expertise, and individuals with higher levels of health literacy may be better equipped to use these tools to their advantage.

The health status of an individual is another significant factor that affects the use of healthtech tools and resources. People with chronic health conditions may require more frequent health monitoring, management, and intervention. Healthtech tools can provide individuals with a range of resources to manage their health conditions effectively. These may include wearable devices that monitor vital signs, medication reminders, or telemedicine platforms that enable remote consultations with healthcare professionals. The utilization of these tools can empower individuals to take control of

their health and better manage their health conditions.

The presence of chronic conditions is also a significant factor in the use of healthtech tools and resources. Individuals with chronic health conditions may use healthtech tools more frequently to monitor their health, track their symptoms, and communicate with their healthcare providers. These tools may enable individuals to engage in self-management of their health conditions, which can lead to better health outcomes. Moreover, healthtech tools can help individuals to identify potential health issues early, leading to timely intervention and improved health outcomes.

The frequency of healthcare service utilization is another factor that may affect an individual's engagement with healthtech tools and resources. Individuals who use healthcare services frequently may be more familiar with the tools and resources available to them. For example, an individual who undergoes regular blood tests may be more likely to utilize a mobile app that helps them track their lab results over time. Similarly, individuals who receive regular medical care may be more aware of the benefits of telemedicine and more likely to engage in virtual consultations with their healthcare providers.

The level of trust an individual has in their healthcare provider can also affect their use of healthtech tools and resources. Healthcare providers are often the primary source of information and guidance regarding health-related matters. Therefore, an individual's trust in their healthcare provider can influence their willingness to utilize healthtech tools recommended by their provider. Individuals who trust their healthcare providers may be more open to using healthtech tools and resources to manage their health, especially if their providers endorse the use of these tools.

Methodology

By performing a logarithmic summation of the items presented in Table 2, we computed the indices for all the variables..

$$Z_i = \sum_{n}^{i} x_i$$

Subsequently, the aforementioned variables are utilized in the subsequent multiple ordinary least squares (OLS) model:

$$healtTech_i = \alpha + \beta_1 Socio_i + \beta_2 demo_i + \beta_3 Tech_i + \beta_4 Health_i + \vartheta_i$$

Multiple regression refers to a statistical approach that is used to examine the correlation between a dependent variable and two or more independent variables. It enables researchers to study the impact of various predictors on the outcome variable while accounting for other variables. This technique helps in controlling the effects of confounding variables and identifying the relative contribution of each predictor to the outcome variable..

The dependent variable, healthttech, was proxied by SUS. Table 3 presents the SUS items.

Table 2. Independent variables

Determinants of Healthtech Literacy	Factors
Socioeconomic factors ($Socio_i$)	Income level
	Education level
	Employment status
	Access to health insurance
	Geographic location (e.g. rural vs. urban)
Demographic factors ($Demo_i$)	Age
	Gender
	Ethnicity
	Language proficiency
	Disability status
Technological factors ($Tech_i$)	Access to technology (e.g. smartphones, computers, internet)
	Familiarity with technology
	Comfort level using technology
	Frequency of technology use
	Availability of technical support
Health-related factors ($Health_i$)	Health literacy
	Health status
	Presence of chronic conditions
	Use of healthcare services
	Trust in healthcare providers

Table 3. Items for System Usability Scale (SUS)

SUS Item	Statement
1	I think that the system is easy to use.
2	I found the system to be unnecessarily complex.
3	I think that I would like to use this system frequently.
4	I found the system very cumbersome to use.
5	I thought the system was easy to use, even for someone without technical expertise.
6	I think that most people would be able to learn to use this system very quickly.
7	I found the system very difficult to use.
8	I felt confident using the system to accomplish my health goals.
9	I needed to learn a lot of things before I could get going with this system.
10	I found the system very awkward to use.

The model can be characterized as follows, if x_{nj} is the jth predictor for observation n:

$$y_n = \beta_0 + \beta_1 x_{n1} + \cdots + \beta_D x_{nD} + \epsilon_n.$$

The aforementioned can be formulated as:

$$y_n = \boldsymbol{\beta}^\top \mathbf{x}_n + \epsilon_n.$$

Optimizing this loss function becomes less complex when working with matrices instead of summations. Let y and X as:

$$\mathbf{y} = \begin{bmatrix} y_1 \\ \ldots \\ y_N \end{bmatrix} \in \mathbb{R}^N, \quad \mathbf{X} = \begin{bmatrix} \mathbf{x}_1^\top \\ \ldots \\ \mathbf{x}_N^\top \end{bmatrix} \in \mathbb{R}^{N \times (D+1)},$$

The loss function can be expressed in a similar fashion as:

$$\mathcal{L}(\hat{\boldsymbol{\beta}}) = \frac{1}{2}(\mathbf{y} - \mathbf{X}\hat{\boldsymbol{\beta}})^\top (\mathbf{y} - \mathbf{X}\hat{\boldsymbol{\beta}}).$$

Results and discussion

The results show the outcome of a linear regression analysis where the dependent variable is HEALTHTECH, and the independent variables are SOCIO, DEMO, TECH, HEALTH, and C. The regression analysis was performed using the Least Squares method. The sample size is 312, and all observations were included in the analysis. The results of the regression show that all independent variables have a significant effect on the dependent variable at a 5% level of significance. The R-squared value is 0.76, which means that the model

explains 76% of the variance in the dependent variable. The Adjusted R-squared value is 0.76, which suggests that the model's performance does not suffer from overfitting.

The results show that the coefficient estimates for all independent variables are positive, indicating that an increase in the values of SOCIO, DEMO, TECH, and HEALTH is associated with an increase in the value of HEALTHTECH. The magnitude of the coefficients suggests that TECH has the strongest effect on HEALTHTECH, followed by HEALTH, DEMO, and SOCIO, respectively. The intercept (C) coefficient estimate is also positive and significant, suggesting that the value of HEALTHTECH is expected to be 0.64 when all independent variables are equal to 0.

The standard errors for all coefficient estimates are relatively small, indicating that the estimates are precise. The F-statistic value is high, which indicates that the overall model is significant, and the null hypothesis that all coefficients are equal to zero can be rejected. The Wald F-statistic value is also high, indicating that the joint significance of all independent variables can be accepted. The Durbin-Watson statistic value is 2.14, which indicates that there is no significant autocorrelation in the residuals.

Figure 1 shows that there are strong correlations between healthtech and the factors.

Figure 1. correlation results and relation between healthtech literacy and other factors
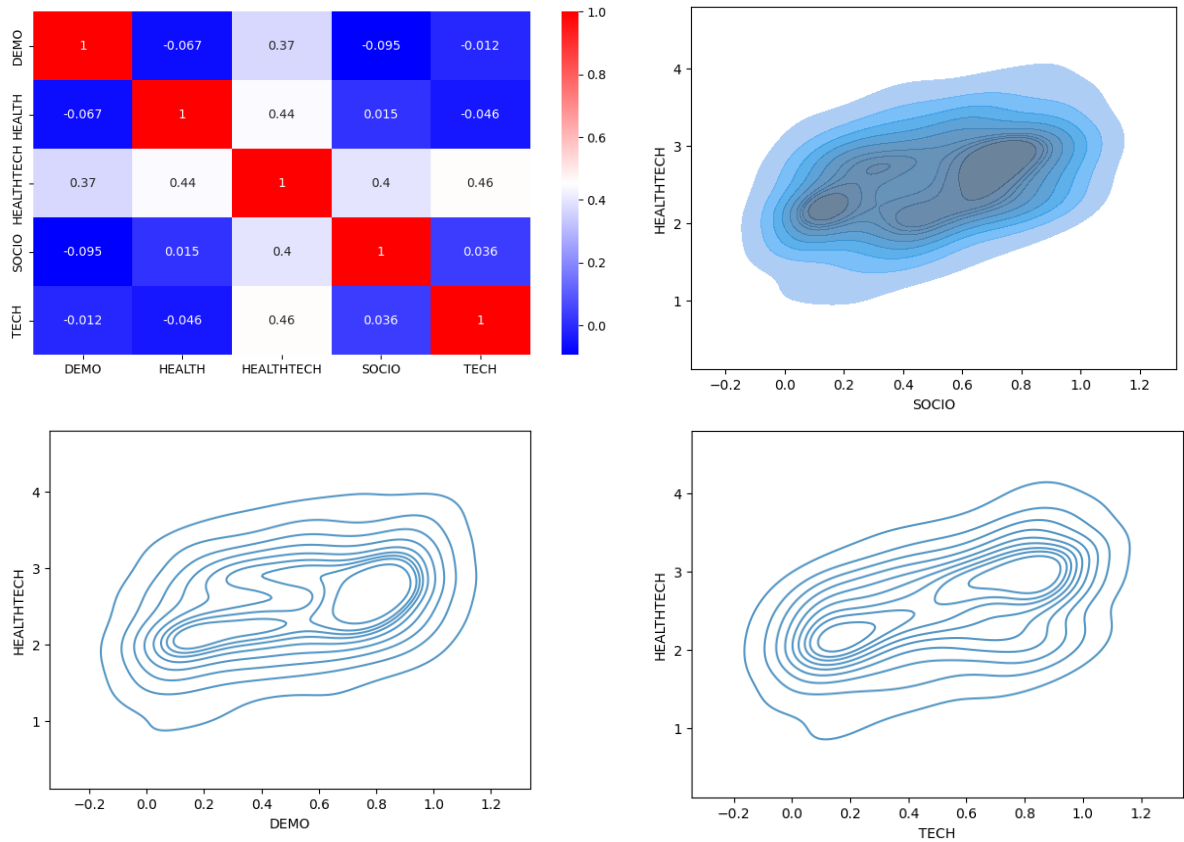

Table 4. Regression results
Dependent Variable: HEALTHTECH
Sample: 1 312
Included observations: 312

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SOCIO	0.871721	0.060413	14.42930	0.0000
DEMO	0.905753	0.056858	15.93012	0.0000
TECH	0.932292	0.056084	16.62310	0.0000
HEALTH	1.024919	0.057899	17.70193	0.0000
C	0.643340	0.060641	10.60901	0.0000

R-squared	0.759977	Mean dependent var	2.531747
Adjusted R-squared	0.756850	S.D. dependent var	0.595226
S.E. of regression	0.293507	Akaike info criterion	0.402067
Sum squared resid	26.44698	Schwarz criterion	0.462051
Log likelihood	-57.72245	Hannan-Quinn criter.	0.426041
F-statistic	243.0116	Durbin-Watson stat	2.144669
Prob(F-statistic)	0.000000	Wald F-statistic	251.2484
Prob(Wald F-statistic)	0.000000		

The results in table 5 show the coefficients and their corresponding confidence intervals (CIs) for a statistical model. Each row represents a different independent variable (socio, demo, tech, health, and C) and their coefficients, which indicate the strength and direction of the relationship with the dependent variable.

The confidence intervals give a range of values where we can be certain (at a certain confidence level) that the true population parameter lies within. In this case, the confidence intervals are presented for 90%, 95%, and 99% confidence levels.

The results of the study indicate that there are four significant factors that affect healthtech literacy. This suggests that there are multiple areas that need to be addressed in order to improve healthtech literacy among the population. It is important for policymakers and healthcare providers to take into consideration these factors when designing healthtech literacy programs, as they can help to target specific areas of need.

Furthermore, the findings also suggest that there is a need for greater education and awareness around healthtech literacy. Many individuals may not even be aware of what healthtech literacy is, let alone how it can impact their health outcomes. Therefore, efforts should be made to raise awareness about healthtech literacy and its importance, particularly among populations who may be at a risk for health disparities.

Table 5. Coefficient Confidence Intervals

Sample: 1 312
Included observations: 312

Variable	Coefficient	90% CI		95% CI		99% CI	
		Low	High	Low	High	Low	High
SOCIO	0.871721	0.772049	0.971393	0.752845	0.990598	0.715134	1.028309
DEMO	0.905753	0.811947	0.999559	0.793872	1.017633	0.758381	1.053125
TECH	0.932292	0.839763	1.024822	0.821934	1.042650	0.786926	1.077659
HEALTH	1.024919	0.929396	1.120442	0.910991	1.138848	0.874849	1.174989
C	0.643340	0.543293	0.743387	0.524016	0.762664	0.486162	0.800518

For example, for the variable "SOCIO," the coefficient is 0.871721, and the 95% CI is from 0.772049 to 0.971393. This means that we can be 95% confident that the true population parameter lies between those two values.

The findings of the study underscores the importance of healthtech literacy and the need to address the multiple factors that can impact it. As technology continues to play an increasingly important role in healthcare, it is crucial that individuals are equipped with the skills and knowledge

necessary to navigate and effectively use these tools.

Conclusion

Healthtech literacy is critical for individuals to effectively use healthtech tools and navigate the healthcare system. It involves a combination of digital skills, health knowledge, and critical thinking skills. Healthtech literacy plays a vital role in empowering patients to take control of their health, reducing health disparities, and improving health outcomes. Initiatives that promote healthtech literacy are essential for bridging the digital divide and ensuring that everyone has access to the benefits of healthtech.

Income level, education level, employment status, access to health insurance, and geographic location are important factors that can impact healthtech literacy. Understanding how these factors affect healthtech literacy can help healthcare providers and policymakers design strategies to improve healthtech literacy and promote better health outcomes. By addressing these factors, individuals can better understand how to use healthtech tools and resources to improve their health and wellbeing.

Demographic factors such as age, gender, ethnicity, language proficiency, and disability status can impact healthtech literacy. Healthtech designers must consider these factors in their designs to ensure that their tools are accessible and relevant to all users. By creating healthtech tools that are inclusive and meet the diverse needs of users, designers can help improve health outcomes for all. It is essential to promote healthtech literacy and address the

digital divide to ensure that everyone has access to the benefits of healthtech.

Technological factors play a significant role in shaping an individual's healthtech literacy. Access to technology, familiarity with technology, comfort level using technology, frequency of technology use, availability of technical support, and internet connectivity are all critical factors that impact an individual's healthtech literacy. To improve healthtech literacy, it is essential to address these technological factors and ensure that everyone has access to the necessary resources to improve their health literacy. This will not only help individuals make informed decisions about their health but also help promote overall health and wellbeing in society.

Health-related factors such as health literacy, health status, chronic conditions, healthcare service utilization, and trust in healthcare providers can all influence an individual's engagement with healthtech tools and resources. Understanding these factors can help healthcare providers and policymakers develop more targeted interventions and initiatives that promote the effective use of healthtech tools to improve health outcomes. Furthermore, efforts to improve health literacy and promote the use of healthtech tools can empower individuals to take control of their health and make more informed decisions regarding their well-being.

Addressing healthtech literacy requires collaboration across multiple fields, including healthcare, education, and technology. It may require designing targeted programs that address the unique needs of different populations and working

with community organizations to ensure that individuals have access to the necessary resources.

Future research in the field of healthtech literacy could be valuable in developing more targeted interventions that address the specific factors associated with lower healthtech literacy. The current study provides a foundation for identifying the primary factors that impact healthtech literacy, but further research can explore more specific details, such as the specific types of health technologies that individuals may struggle with or the specific types of prior technology exposure that may be most beneficial.

By identifying these specific factors, interventions can be developed that are tailored to individual needs and can help individuals to overcome their specific barriers to healthtech literacy. For example, if age is identified as a significant factor, interventions can be designed that take into consideration the unique needs and preferences of older adults. Similarly, if income is found to be a barrier, interventions can be developed that provide low-cost or free resources to those in need. Furthermore, future research could also explore the effectiveness of various healthtech literacy interventions. Understanding which interventions are most effective in improving healthtech literacy can help policymakers and healthcare providers to make informed decisions about resource allocation and program development.

References

[1] M. Russo and B. White, "IT system integration -- global medical acquisition of health tech case study," *Information Systems Education Journal*, vol. 11, no. 5, p. 16, Oct. 2013.

[2] H. C. Ossebaard, "Conventional health tech," *iHealth: supporting health by technology*, 2012.

[3] J. Epstein, "cleveland HEALTH-TECH CORRIDOR," *Economic Development Journal*, vol. 3, no. 1, pp. 7–13, 2016.

[4] A. Meharouech, J. Elias, and A. Mehaoua, "Future body-to-body networks for ubiquitous healthcare: a survey, taxonomy and challenges," in *2015 2nd International Symposium on Future Information and Communication Technologies for Ubiquitous HealthCare (Ubi-HealthTech)*, 2015, pp. 1–6.

[5] A. Global, V. Summit, C. Healthtech, and R. Summit, "Major Pharmaceutical Conferences and Courses," *Pharmaceut. Med.*, vol. 28, no. 3, pp. 163–167, Jun. 2014.

[6] C. Healthtech, O. T. West, C. A. Burlingame, and M. D. Rockville, "Major Pharmaceutical Conferences and Courses," *Pharmaceut. Med.*, vol. 29, no. 1, pp. 63–67, Feb. 2015.

[7] P. Dhake, R. Dixit, and D. Manson, "Calculating a Severity Score of an Adverse Drug Event Using Machine Learning on the FAERS Database," *IIMA/ICITED UWS*, 2017.

[8] D. Little, "The tech outlook: Health tech," *Bus. Week*, 2002.

[9] J. S. Feitelson, "Sixth Annual Meeting on Proteomic Sample Preparation, part of the second annual Getting Optimized Targets Summit:

24-25 April 2006, Cambridge Healthtech Institute, MA, USA," *Expert Rev. Proteomics*, vol. 3, no. 4, pp. 395–397, Aug. 2006.

[10] Z. Sharfina and H. B. Santoso, "An Indonesian adaptation of the System Usability Scale (SUS)," in *2016 International Conference on Advanced Computer Science and Information Systems (ICACSIS)*, 2016, pp. 145–148.

[11] V. HealthTech, "A HealthTech Report," *pdf.usaid.gov*.

[12] R. Schneider, "Research Data Literacy," in *Worldwide Commonalities and Challenges in Information Literacy Research and Practice*, 2013, pp. 134–140.

[13] A. Al-Qahtani *et al.*, "A non-invasive remote health monitoring system using visible light communication," in *2015 2nd International Symposium on Future Information and Communication Technologies for Ubiquitous HealthCare (Ubi-HealthTech)*, 2015, pp. 1–3.

[14] M. Rolfstam, "Concerning support for SME's as suppliers of public health tech innovation: Some reflections and case evidence," in *20th International Research Society on Public Management Conference 13 -15 April, 2016 Hong Kong*, 2016.

[15] Y. Shi, G. Ding, H. Wang, and H. E. Roman, "The fog computing service for healthcare," *(Ubi-HealthTech)*, 2015.

[16] P. F. Anderson, "HealthTech," *Health Care Internet*, 1996.

[17] D. Moulton, "New guidelines for evaluating health tech," *CMAJ*, vol. 189, no. 18, p. E675, May 2017.

[18] H. Thimbleby and R. Koppel, "The Healthtech Declaration," *IEEE Secur.*

Priv., vol. 13, no. 6, pp. 82–84, Nov. 2015.

[19] E. S. Gummer and E. B. Mandinach, "Building a Conceptual Framework for Data Literacy," *Teach. Coll. Rec.*, vol. 117, no. 4, pp. 1–22, Apr. 2015.

[20] S. C. Peres, T. Pham, and R. Phillips, "Validation of the System Usability Scale (SUS): SUS in the Wild," *Proc. Hum. Fact. Ergon. Soc. Annu. Meet.*, vol. 57, no. 1, pp. 192–196, Sep. 2013.

[21] K. K. Jain, "Cambridge Healthtech Institute's Third Annual Conference on lab-on-a-chip and microarrays. 22-24 January 2001, Zurich, Switzerland," *Pharmacogenomics*, vol. 2, no. 1, pp. 73–77, Feb. 2001.

[22] R. D. Beger, "Cambridge Healthtech Institute's 7th Annual, identifying and validating metabolic markers for drug development and clinical studies," *Expert Rev. Mol. Diagn.*, vol. 7, no. 2, pp. 113–115, Mar. 2007.

[23] R. Kohn, S. Saxena, I. Levav, and B. Saraceno, "The treatment gap in mental health care," *Bull. World Health Organ.*, vol. 82, no. 11, pp. 858–866, Nov. 2004.

[24] World Health Organization(WHO), *Mental health care in developing countries: A critical appraisal of research findings*. Genève, Switzerland: World Health Organization, 1984.

[25] V. Patel, *Where There Is No Psychiatrist: A mental health care manual*. London, England: Gaskell, 2003.

[26] D. Meshvara, "Mental health and mental health care in Asia," *World Psychiatry*, vol. 1, no. 2, pp. 118–120, Jun. 2002.

[27] A. Borkowska and K. Jach, "Pre-testing of Polish Translation of

System Usability Scale (SUS)," in *Information Systems Architecture and Technology: Proceedings of 37th International Conference on Information Systems Architecture and Technology – ISAT 2016 – Part I,* 2017, pp. 143–153.

[28] A. Floyd and D. Sakellariou, "Healthcare access for refugee women with limited literacy: layers of disadvantage," *Int. J. Equity Health*, vol. 16, no. 1, p. 195, Nov. 2017.

[29] V. Bhattacherjee, R. Greene, and M. M. Pisano, "Cambridge Healthtech Institute's 3rd Annual Laser Capture Microscopy: cutting edge applications. May 2-3 2005, World Trade Center, Boston, MA, USA," *Expert Rev. Mol. Diagn.*, vol. 5, no. 4, pp. 487–491, Jul. 2005.