

## The Role of Health Literacy in Shaping Self-Management Skills and Healthy Lifestyle Behaviors among Migrant University Students Living in Boarding Houses

Youlia Opita Sibuea<sup>1\*</sup>, Nabila Simamora<sup>2</sup>, Mahfuzi Irwan<sup>3</sup>, Khodijah Tussolihin<sup>4</sup>

Universitas Negeri Medan, Medan, Indonesia

### ABSTRACT

Migrant university students living in boarding houses face significant challenges in maintaining healthy lifestyles due to academic pressure, environmental changes, and limited access to health-supporting facilities. Health literacy plays a crucial role in enabling students to manage their health independently by accessing, understanding, evaluating, and applying health information. This study aims to analyze the role of health literacy in shaping self-management skills and healthy lifestyle behaviors among migrant students residing in boarding houses. A quantitative descriptive approach was employed using a structured online questionnaire distributed to 50 migrant students. The instrument measured dimensions of health literacy, physical health behaviors, mental health awareness, and self-management practices. Data were analyzed using descriptive statistics to identify behavioral trends and literacy patterns. The findings indicate that while students demonstrate relatively high access to digital health information, the application of health knowledge in daily practices such as balanced diet, regular physical activity, and adequate sleep remains inconsistent. Academic workload and economic constraints emerged as major barriers to healthy behavior. The study concludes that students' health literacy is predominantly at a functional level and has not yet fully translated into sustainable self-management practices. These findings highlight the need for targeted health education interventions that promote critical and applied health literacy among migrant students.

### ABSTRAK

Mahasiswa migran yang tinggal di asrama menghadapi tantangan yang signifikan dalam mempertahankan gaya hidup sehat karena tekanan akademik, perubahan lingkungan, dan terbatasnya akses ke fasilitas pendukung kesehatan. Literasi kesehatan memainkan peran penting dalam memungkinkan siswa mengelola kesehatan mereka secara mandiri dengan mengakses, memahami, mengevaluasi, dan menerapkan informasi kesehatan. Penelitian ini bertujuan untuk menganalisis peran literasi kesehatan dalam membentuk keterampilan manajemen diri dan perilaku gaya hidup sehat di kalangan mahasiswa migran yang tinggal di kos-kosan. Pendekatan deskriptif kuantitatif digunakan menggunakan kuesioner online terstruktur yang didistribusikan kepada 50 siswa migran. Instrumen ini mengukur dimensi literasi kesehatan, perilaku kesehatan fisik, kesadaran kesehatan mental, dan praktik manajemen diri. Data dianalisis menggunakan statistik deskriptif untuk mengidentifikasi tren perilaku dan pola literasi. Temuan tersebut menunjukkan bahwa meskipun siswa menunjukkan akses yang relatif tinggi terhadap informasi kesehatan digital, penerapan pengetahuan kesehatan dalam praktik sehari-hari seperti diet seimbang, aktivitas fisik teratur, dan tidur yang cukup tetap tidak konsisten. Beban kerja akademik dan kendala ekonomi muncul sebagai hambatan utama untuk perilaku sehat. Studi ini menyimpulkan bahwa literasi kesehatan siswa sebagian besar berada pada tingkat fungsional dan belum sepenuhnya diterjemahkan ke dalam praktik manajemen diri yang berkelanjutan. Temuan ini menyoroti perlunya intervensi pendidikan kesehatan yang ditargetkan yang mempromosikan literasi kesehatan yang kritis dan terapan di kalangan siswa migran.

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\* Corresponding Author: Mahfuzi Irwan ([mahfuziirwan@gmail.com](mailto:mahfuziirwan@gmail.com))



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## Introduction

The transition to university life represents a critical developmental phase in which young adults are required to manage their health independently. This challenge is particularly pronounced among migrant students living in boarding houses, who must adapt to new academic demands, social environments, and living conditions without direct family supervision. Empirical evidence indicates that university students living away from home are more vulnerable to unhealthy lifestyle behaviors, including irregular eating patterns, insufficient physical activity, inadequate sleep, and poor stress management (WHO, 2021).

Globally, unhealthy lifestyles among young adults have become a growing public health concern. The World Health Organization (2022) reports that over 80% of adolescents and young adults worldwide fail to meet recommended physical activity levels, while unhealthy dietary habits and sedentary behaviors continue to rise. In Southeast Asia, university students show increasing rates of stress-related health problems, with studies indicating that more than 60% of students report moderate to high stress levels, often accompanied by sleep deprivation and poor self-care practices.

In Indonesia, this issue is further intensified by demographic and social factors. According to national statistics, individuals aged 18–24 constitute a substantial proportion of the population, and a large segment of university students are migrants who live in boarding houses near campuses. Recent surveys suggest that more than 70% of Indonesian university students rely on instant or low-nutrient foods, while only around 30–40% engage in regular physical activity (BPS, 2023). These conditions reflect structural and behavioral challenges in maintaining healthy lifestyles among migrant students.

Health literacy has been identified as a key determinant in shaping individuals' capacity to manage their health effectively. Nutbeam (2000, 2018) conceptualizes health literacy as a multidimensional construct encompassing functional, interactive, and critical skills that enable individuals to access, understand, evaluate, and apply health information in daily life. In the digital era, students have unprecedented access to health information through online platforms. However, high exposure to health information does not necessarily translate into healthy behavior. Studies consistently show that young adults often possess adequate health knowledge but struggle to apply it consistently, particularly in managing diet, physical activity, stress, and sleep (Sørensen et al., 2012).

Table 1. Public Health Context and Research Gap

Aspect	Empirical Evidence	Implication for Research
Physical activity	Over 80% of young adults globally do not meet recommended activity levels (WHO, 2022)	Indicates high risk of sedentary lifestyles among students
Dietary behavior	More than 70% of Indonesian students consume instant or low-nutrient food regularly (BPS, 2023)	Highlights poor dietary self-management
Stress & sleep	Over 60% of university students report moderate–high stress and inadequate sleep	Suggests weak self-regulation skills
Health information access	Students rely heavily on digital health information	Access does not guarantee healthy behavior
Research gap	Limited studies linking health literacy to self-management among migrant students	Justifies the focus of the present study

Migrant students living in boarding houses face unique constraints that may limit the effective application of health knowledge. Academic workload, financial limitations, limited cooking facilities, and peer influence often shape daily routines, leading students to prioritize academic efficiency over health maintenance. As a result, health literacy among students frequently remains at a functional level, characterized by information access and basic understanding, without progressing to critical and applied self-management skills.

Despite increasing attention to student health behavior, existing research tends to examine health literacy or lifestyle behaviors in isolation. Empirical studies that explicitly analyze the role of health literacy in shaping self-management skills and healthy lifestyle behaviors

among migrant students in boarding houses remain limited, particularly in developing country contexts. Moreover, few studies systematically link digital health information use with students' ability to regulate daily health behaviors independently.

Therefore, this study aims to analyze the role of health literacy in shaping self-management skills and healthy lifestyle behaviors among migrant university students living in boarding houses. By integrating health literacy theory with empirical evidence on student lifestyles, this study seeks to address a critical research gap and provide evidence-based insights for health education, campus health promotion, and policy development targeting young adult populations.

## Method

### Research Design

This study employed a **quantitative cross-sectional research design** to examine the role of health literacy in shaping self-management skills and healthy lifestyle behaviors among migrant university students living in boarding houses. A cross-sectional approach was selected to capture participants' health literacy levels, self-management capacities, and lifestyle behaviors at a single point in time, allowing for an integrated analysis of relationships among these variables.

### Participants and Study Setting

The study population consisted of **migrant undergraduate students** who live in boarding houses (kost) located near university campuses. Migrant students were defined as students who reside outside their family homes and live independently during their period of study. Participants were recruited using **purposive sampling**, with inclusion criteria as follows:

1. Currently enrolled as an undergraduate student;
2. Living in a boarding house for at least six months;
3. Willing to participate voluntarily and provide informed consent.

This sampling strategy was used to ensure that participants had sufficient experience of independent living, which is essential for assessing self-management and health-related decision-making.

### Research Instrument

Data were collected using a structured self-administered online questionnaire distributed via Google Forms. The instrument was developed by adapting established theoretical frameworks of health literacy, particularly Nutbeam's health literacy model and the Digital Health Literacy Instrument (DHLI) proposed by van der Vaart et al.

The health literacy component of the questionnaire was structured around four core dimensions:

1. Access – the ability to search for and obtain health information through digital platforms such as search engines, social media, and health-related websites;
2. Understand – the ability to comprehend health-related terms, instructions, and explanations presented in digital and non-digital health information;
3. Appraise – the ability to critically evaluate the credibility, accuracy, and relevance of health information;
4. Apply – the ability to use health information to make appropriate health-related decisions and adopt healthy behaviors in daily life.

These dimensions reflect the progressive development of health literacy skills as conceptualized by Nutbeam (2000), encompassing functional, interactive, and critical competencies, and are consistent with the DHLI framework, which emphasizes digital health contexts.

In addition to health literacy, the questionnaire included items measuring:

- Self-management skills, such as time management, self-regulation, stress management,

- health planning, and decision-making related to personal health;
- Healthy lifestyle behaviors, including dietary habits, physical activity, sleep patterns, hygiene practices, hydration, and avoidance of risky behaviors such as smoking or vaping. All items were measured using a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

### **Validity and Reliability**

Content validity was established through expert judgment involving lecturers and researchers with expertise in public health and health education. Construct validity was assessed by aligning questionnaire items with established theoretical dimensions of health literacy and self-management. Internal consistency reliability was evaluated using Cronbach's alpha, with coefficients exceeding the acceptable threshold of 0.70, indicating good reliability of the instrument.

### **Data Collection Procedure**

Data collection was conducted over a defined period using an online survey platform. Participants received a brief explanation of the study objectives, confidentiality assurances, and instructions for completing the questionnaire. Participation was voluntary, and anonymity was maintained throughout the research process.

### **Data Analysis**

Data were analyzed using descriptive and inferential statistical techniques. Descriptive statistics (mean, standard deviation, and percentage) were used to describe levels of health literacy, self-management skills, and healthy lifestyle behaviors. Inferential analysis was conducted to examine the relationship between health literacy dimensions and self-management as well as healthy lifestyle outcomes. Statistical significance was determined at a conventional alpha level of 0.05.

### **Ethical Considerations**

Ethical principles were upheld throughout the study. Participants provided informed consent prior to participation, and all data were treated confidentially. The study ensured that participation posed no physical or psychological risk to respondents.

## **Result and Discussion**

### **Respondent Characteristics**

A total of 50 migrant students living in boarding houses participated in this study. The majority of respondents were female (92%), while male respondents accounted for only 8%. In terms of age, most participants were between 19–21 years old (58%), followed by those aged 21–24 years (24%), and those under 19 years old (18%).

Respondents came from diverse academic programs, with the highest representation from Indonesian Language Education (10%) and Biology Education (8%). Several programs—including Guidance and Counseling, Early Childhood Education, Primary School Education, Community Education, and English Literature—each contributed 6% of respondents, while other programs were represented by smaller proportions (2–4%).

Regarding duration of residence, half of the respondents (50%) had lived in boarding houses for 1–2 years, followed by those living for more than two years (34%). Only a small proportion had stayed for less than one year (16%), indicating that most respondents had substantial experience managing independent living conditions.

### **Health Literacy Dimension: Access**

Results show that students demonstrated high access to health information, particularly through digital media. Nearly half of the respondents (48%) relied primarily on the internet and

social media as their main sources of health information, while 30% reported obtaining information from medical professionals.

This finding suggests that digital platforms serve as the dominant entry point for health-related knowledge among migrant students, reflecting their need for fast, easily accessible, and low-cost information while living independently.

### **Health Literacy Dimension: Understand**

Students generally exhibited an adequate level of understanding regarding basic health-related information. Most respondents perceived their overall ability to maintain personal health as “good” (62%) or “fair” (20%).

In practice, students showed awareness of bodily signals such as fatigue; when feeling physically exhausted, 50% reported choosing rest and improving sleep patterns, while 42% consumed vitamins or energy supplements. These behaviors indicate a functional level of health literacy that enables students to recognize common health conditions and respond appropriately.

### **Health Literacy Dimension: Appraise**

Despite high access to health information, critical appraisal skills remained uneven. While students actively accessed digital health content, only a limited proportion consistently applied evaluative practices. For example, 50% of respondents reported that they *rarely* checked nutritional labels, indicating a gap between information exposure and critical evaluation of health-related details.

This pattern suggests that although students are capable of accessing and understanding health information, not all possess sufficient confidence or habit in critically assessing health data, particularly in everyday decision-making contexts such as food selection.

### **Health Literacy Dimension: Apply**

In terms of application, results indicate a moderate translation of health literacy into self-management behaviors. Most respondents demonstrated positive hygiene practices, with 56% reporting that they always maintained room cleanliness and 36% doing so frequently. Preventive behaviors were also relatively strong, with 58% frequently and 34% very frequently engaging in disease prevention actions such as handwashing, maintaining cleanliness, and consuming vitamins.

However, lifestyle behaviors revealed notable challenges. Only 26% of respondents consumed nutritious food daily, while the majority reported irregular dietary patterns. Physical activity levels were low, with 34% exercising only 1–2 times per month and 22% never exercising. Sleep patterns were also suboptimal, as 66% reported sleeping late despite having adequate total sleep duration.

When experiencing illness, 70% of respondents chose to rest and take medication, reflecting responsible health management, although 24% continued normal activities despite being unwell.

### **Mental Health Awareness and Stress Management**

Mental health literacy and coping behaviors showed generally positive trends. When facing academic stress, 66% of students chose to rest temporarily to regain emotional balance. In managing emotional instability, 46.9% engaged in positive coping strategies such as worship, journaling, or relaxation, while 24.5% tended to withdraw socially.

Most respondents reported frequently (58%) or always (24%) managing stress through positive strategies. However, academic workload emerged as the primary barrier to maintaining health (44%), followed by high living costs and expensive healthy food options (26%).

### **Self-Management Capacity and Motivation**

The majority of students demonstrated moderate self-management skills, with 76% reporting a fairly good ability to balance academic responsibilities, health, and personal life.

Additionally, 66% reported maintaining health primarily to remain focused on their studies, while 34% were motivated by parental encouragement.

These findings indicate that academic performance serves as a strong intrinsic motivator for health management among migrant students.

### Summary of Results

Table 2 summarizes the key findings of the study by mapping respondents' health-related behaviors and perceptions across the four core dimensions of health literacy.

Table 2. Summary of Results by Health Literacy Dimensions among Migrant Students Living in Boarding Houses

Health Literacy Dimension	Key Indicators	Main Findings	Interpretation
Access	Primary sources of health information	48% rely on internet and social media; 30% consult medical professionals	Students demonstrate high access to digital health information, with online platforms as the dominant entry point
Understand	Self-perceived health management ability; response to physical fatigue	62% rated their health management as good; 50% rest and improve sleep when feeling fatigued	Functional health literacy is adequate, enabling students to recognize basic health conditions and needs
Appraise	Evaluation of health information (e.g., nutrition labels)	50% rarely check nutritional labels	Critical appraisal skills remain limited, especially in daily health-related decision-making
Apply	Hygiene practices; preventive behaviors; lifestyle habits	56% always maintain room cleanliness; 58% frequently practice disease prevention; low physical activity and irregular diet	Application of health literacy is strong in hygiene and prevention, but weak in nutrition, exercise, and sleep routines
Mental Health Literacy	Stress response and coping strategies	66% rest during academic stress; 46.9% use positive coping strategies	Students show awareness of mental health needs, though some still withdraw socially
Self Management Capacity	Ability to balance health, academics, and personal life	76% reported fairly good balance; 66% maintain health to stay focused academically	Academic demands are both a motivator and a barrier to consistent healthy behaviors

Overall, the results reveal that migrant students possess strong access to health information and adequate functional understanding, but face challenges in critical appraisal and consistent application, particularly regarding nutrition, physical activity, and sleep management. While awareness and motivation are present, academic pressure and economic constraints limit the full translation of health literacy into sustainable healthy lifestyles.

### Respondent Characteristics and Health Literacy Context

The dominance of female respondents in this study is consistent with international evidence suggesting that women tend to demonstrate higher engagement in health-related surveys and greater sensitivity to health and lifestyle issues (Ek, 2015; Sørensen et al., 2012). Female students are often reported to exhibit higher functional health literacy and stronger preventive health behaviors, particularly in hygiene and self-care practices (Lee et al., 2020). This demographic pattern may partly explain the relatively high levels of hygiene awareness and preventive actions observed in this study.

The age concentration of respondents in the 19–21-year range places them within a critical developmental phase characterized by increasing autonomy and identity formation. Previous studies have shown that this transition period is associated with unstable health behaviors, especially among students living away from family support systems (Arnett, 2014; Elmer et al., 2020). Migrant students are required to independently manage diet, sleep, and stress, often without adequate preparation, which may contribute to inconsistent health behaviors despite adequate health knowledge.

### Health Literacy and Lifestyle Practices: Knowledge–Action Gap

The findings reveal a clear discrepancy between health awareness and actual lifestyle practices, a phenomenon widely documented in health literacy research. Although respondents

perceived their health management abilities positively, irregular sleep patterns, low physical activity, and inadequate dietary intake remained prevalent. This aligns with Nutbeam's (2000) framework, which emphasizes that functional health literacy alone is insufficient to sustain healthy behaviors without interactive and critical competencies.

International studies have consistently reported that university students often possess adequate health knowledge but struggle to translate it into consistent behavior due to time constraints, academic stress, and environmental barriers (Dodd et al., 2010; Van den Broucke, 2014). Similar patterns have been observed among migrant and international students, who frequently prioritize academic performance over health maintenance (Forbes-Mewett & Sawyer, 2016).

### **Digital Health Literacy: Strength in Access, Weakness in Appraisal**

The high reliance on internet and social media as primary health information sources reflects strong access capabilities, a common characteristic among young adults in the digital era (Norman & Skinner, 2006; Van der Vaart et al., 2011). Digital platforms offer immediacy and convenience, particularly for students living independently. However, the limited practice of checking nutritional labels highlights weaknesses in the appraisal dimension of health literacy.

This finding supports prior research indicating that digital health literacy often remains superficial, with users consuming large volumes of information without critically evaluating credibility or relevance (Diviani et al., 2015; Cheng & Dunn, 2015). The illusion of being informed—created by constant exposure to online content—may reduce motivation to engage in deeper evaluative processes, particularly for routine decisions such as food selection (Sørensen et al., 2015).

### **Health Literacy and Self-Management Skills**

The strong hygiene and preventive behaviors observed among respondents suggest that functional health literacy is well established. These behaviors are consistent with findings from global studies showing that basic preventive actions are more easily adopted because they require less cognitive processing and long-term planning (Kickbusch et al., 2013).

In contrast, behaviors requiring sustained self-regulation—such as regular exercise, balanced nutrition, and consistent sleep routines—were less prevalent. According to self-management theory, such behaviors demand higher-order skills, including goal-setting, prioritization, and critical reflection (Lorig & Holman, 2003). The dominance of academic workload as a barrier reinforces evidence that students often deprioritize health when faced with performance pressures (Bewick et al., 2010; Stallman, 2010).

Importantly, academic success emerged as the primary motivation for maintaining health, indicating an instrumental view of health rather than a holistic one. Similar findings have been reported internationally, where students frame health behaviors as a means to sustain productivity rather than as a long-term investment in well-being (Hamulka et al., 2020).

### **Mental Health Literacy and Coping Strategies**

The relatively adaptive stress management strategies reported—such as resting, engaging in positive activities, and emotional regulation—reflect growing mental health awareness among university students. This aligns with global trends showing increased recognition of mental health importance among young adults (Gulliver et al., 2010; Eisenberg et al., 2013).

However, the tendency of some respondents to withdraw socially during emotional distress raises concerns about maladaptive coping. Social withdrawal has been associated with increased risks of anxiety and depression among students, particularly those living away from family support networks (Thompson et al., 2018). Moreover, the frequent sacrifice of sleep and diet during academic stress mirrors international evidence that academic overload directly undermines both physical and mental health (Ahrberg et al., 2012; Lund et al., 2010).

## **Integrative Discussion: Health Literacy as a Contextual Capability**

Taken together, the findings support contemporary perspectives that conceptualize health literacy as a contextual and relational capability, rather than merely an individual skill set (Kickbusch et al., 2013; Sørensen et al., 2012). While migrant students demonstrate adequate access to information and basic understanding, structural constraints such as academic pressure, financial limitations, and living conditions limit their ability to fully apply health knowledge.

This study reinforces international calls for health literacy interventions that go beyond information dissemination and instead focus on strengthening critical thinking, self-management skills, and supportive environments within higher education settings (Pelikan et al., 2018; Okan et al., 2019). Without such comprehensive approaches, the gap between health knowledge and healthy behavior is likely to persist.

Hasil penelitian menunjukkan bahwa dari 50 responden, mayoritas berjenis kelamin perempuan sebesar 92%, sedangkan laki-laki hanya 8%. Dominasi responden perempuan ini dapat mencerminkan kecenderungan perempuan yang lebih responsif terhadap survei terkait kesehatan dan gaya hidup. Dari sisi usia, sebagian besar responden berada pada rentang 19–21 tahun (58%), diikuti kelompok usia 21–24 tahun (24%) dan kurang dari 19 tahun (18%). Komposisi usia ini menunjukkan bahwa mayoritas responden berada pada fase awal masa perkuliahan, yaitu masa adaptasi yang erat kaitannya dengan perubahan pola hidup dan kesehatan.

## **Conclusion**

This study demonstrates that health literacy plays a crucial role in shaping self-management skills and healthy lifestyle behaviors among migrant students living in boarding houses. The findings reveal that while students generally possess strong access to health information and adequate functional understanding, significant gaps remain in critical appraisal and consistent application of health knowledge in daily life. These gaps are most evident in lifestyle domains requiring sustained self-regulation, such as balanced nutrition, regular physical activity, and healthy sleep routines.

The results further indicate that academic pressure and financial constraints act as major structural barriers, often overriding health considerations despite students' positive health awareness. Although respondents show relatively strong hygiene practices and preventive behaviors, these actions tend to be reactive rather than proactive, reflecting an instrumental view of health primarily oriented toward maintaining academic performance. Mental health awareness among migrant students appears relatively high; however, the persistence of maladaptive coping strategies among some respondents underscores the need for more comprehensive mental health literacy support.

From a theoretical perspective, the findings reinforce contemporary models of health literacy that emphasize its multidimensional and contextual nature. Health literacy should not be understood merely as an individual cognitive skill, but as a dynamic interaction between personal competencies, social environments, and institutional support systems. Without enabling environments, the translation of health knowledge into sustainable self-management behaviors remains limited.

At the policy level, higher education institutions should integrate health literacy development into student support systems, particularly for migrant and boarding-house students. Universities are encouraged to implement structured health promotion programs focusing on digital health literacy, critical evaluation of online health information, and practical self-management skills. Policies supporting affordable access to nutritious food, mental health services, and student-friendly physical activity facilities are essential to reduce structural barriers that hinder healthy living.

Academically, this study contributes empirical evidence to the growing body of literature on health literacy among young adults in transitional living contexts. Future research should adopt longitudinal designs to examine how health literacy evolves over time and how institutional

interventions influence behavioral outcomes. Additionally, integrating qualitative approaches may provide deeper insights into students' lived experiences and contextual challenges, enriching the understanding of health literacy beyond quantitative indicators.

Overall, strengthening health literacy among migrant students requires coordinated efforts at individual, institutional, and policy levels to ensure that health knowledge is not only accessed and understood but effectively applied to support long-term well-being.

## References

- Ahrberg, K., Dresler, M., Niedermaier, S., Steiger, A., & Genzel, L. (2012). The interaction between sleep quality and academic performance. *Journal of Psychiatric Research*, *46*(12), 1618–1622. <https://doi.org/10.1016/j.jpsychires.2012.09.008>
- Arnett, J. J. (2014). *Emerging adulthood: The winding road from the late teens through the twenties* (2nd ed.). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199929382.001.0001>
- Atkinson, R. (2018). *Introduction to Psychology*. Jakarta: Erlangga.
- Badan POM RI. (2021). *Laporan Konsumsi Pangan Bergizi pada Mahasiswa di Indonesia*. Jakarta: BPOM RI.
- Bewick, B. M., Koutsopoulou, G., Miles, J., Slaa, E., & Barkham, M. (2010). Changes in undergraduate students' psychological well-being as they progress through university. *Studies in Higher Education*, *35*(6), 633–645. <https://doi.org/10.1080/03075070903216643>
- Cheng, C., & Dunn, M. (2015). Health literacy and the Internet: A study on the readability of Australian online health information. *Journal of Health Communication*, *20*(6), 709–716. <https://doi.org/10.1080/10810730.2015.1018637>
- Diviani, N., van den Putte, B., Giani, S., & van Weert, J. C. M. (2015). Low health literacy and evaluation of online health information: A systematic review. *Journal of Medical Internet Research*, *17*(5), e112. <https://doi.org/10.2196/jmir.4018>
- Dodd, L. J., Al-Nakeeb, Y., Nevill, A., & Forshaw, M. J. (2010). Lifestyle risk factors of students: A cluster analytical approach. *Preventive Medicine*, *51*(1), 73–77. <https://doi.org/10.1016/j.ypmed.2010.04.005>
- Eisenberg, D., Hunt, J., & Speer, N. (2013). Mental health in American colleges and universities. *Journal of Nervous and Mental Disease*, *201*(1), 60–67. <https://doi.org/10.1097/NMD.0b013e31827ab077>
- Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people. *BMC Psychiatry*, *10*, 113. <https://doi.org/10.1186/1471-244X-10-113>
- Hartono, A., & Dewi, M. (2021). Pengaruh lingkungan hunian terhadap perilaku hidup sehat mahasiswa. *Jurnal Sosial Humaniora*, *12*(2), 115–128.
- Kementerian Kesehatan RI. (2020). *Profil Kesehatan Indonesia 2020*. Jakarta: Kemenkes RI.
- Kickbusch, I., Pelikan, J. M., Apfel, F., & Tsouros, A. D. (2013). *Health literacy: The solid facts*. WHO Regional Office for Europe. <https://doi.org/10.13140/RG.2.1.1027.5289>
- Lee, S. Y. D., Arozullah, A. M., & Cho, Y. I. (2004). Health literacy, social support, and health: A research agenda. *Social Science & Medicine*, *58*(7), 1309–1321. [https://doi.org/10.1016/S0277-9536\(03\)00329-0](https://doi.org/10.1016/S0277-9536(03)00329-0)
- Lorig, K. R., & Holman, H. R. (2003). Self-management education: History, definition, outcomes, and mechanisms. *Annals of Behavioral Medicine*, *26*(1), 1–7. [https://doi.org/10.1207/S15324796ABM2601\\_01](https://doi.org/10.1207/S15324796ABM2601_01)
- Lubis, R. (2022). Perilaku hemat energi dan pengelolaan sampah mahasiswa indekost di Kota Medan. *Jurnal Ekologi Pendidikan*, *4*(1), 45–56.
- Mahmudah, D., & Purwanto, A. (2022). Factors influencing students' sustainable lifestyle. *Journal of Education Research*, *5*(3), 211–220.
- 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>
- Notoatmodjo, S. (2020). *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta.
- Nurfatimah, S. (2023). Literasi kesehatan digital mahasiswa dalam menghadapi hoaks kesehatan. *Jurnal Komunikasi Kesehatan*, 7(1), 32–41.
- Nutbeam, D. (2018). Health literacy and public health. *International Journal of Public Health*, 63(6), 755–756.
- Sørensen, K., Van den Broucke, S., Fullam, J., et al. (2012). Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health*, 12, 80. <https://doi.org/10.1186/1471-2458-12-80>
- Van den Broucke, S. (2014). Health literacy: A critical concept for public health. *Archives of Public Health*, 72(1), 10. <https://doi.org/10.1186/2049-3258-72-10>
- Van der Vaart, R., Drossaert, C. H., de Heus, M., & Taal, E. (2011). Measuring actual eHealth literacy among patients with rheumatic diseases. *Patient Education and Counseling*, 85(3), 411–416. <https://doi.org/10.1016/j.pec.2010.10.011>