

RESEARCH ARTICLE

Literacy Skills in Medical Education

Yuliana

yuliana@unud.ac.id

Universitas Udayana, Denpasar, Indonesia

ABSTRACT

Literacy skills in medical education are critical to develop competent doctors. There are some literacy skills such as health literacy, information literacy, and critical thinking. This paper aims to describe how literacy skills in medical education can be developed. This is a narrative literature review. Literature was taken from PubMed, Scopus, and Google Scholar, and the publication date was within 10 years. Enhance literacy skills in medical education needs curriculum updates, critical evaluation, and health literacy communication techniques. Health literacy communication skills can be taught by teaching the students how to avoid jargon and give effective questions. Selecting reliable content is the step to critical evaluation. Critical thinking is related to the ability to gather data, reassess, and reanalyze. In conclusion, literacy skills in medical education can be developed by improving the curriculum, training the students to have critical thinking skills, and teaching health literacy communication techniques.

Keywords: health, literacy, medical education

INTRODUCTION

There is abundant health information on social media such as YouTube, Instagram, and the internet. Therefore, medical students need to develop literacy skills. Literacy skills in medical education are critical to develop competent doctors. There are some literacy skills such as health literacy, information literacy, and critical thinking.

YouTube as a popular social media, is commonly used by medical students for educational purposes. However, YouTube has various qualities. Therefore, students should evaluate the quality of the video. This activity is known as an essential information literacy skill. The Medical Quality Video Evaluation Tool (MQ-VET) is one of the useful tools for video evaluation. In a study by Pearlman et al. in 2024, students tended to overrate lower-quality videos. Overrating video causes students to learn from substandard sources. This condition means the students' literacy skill in medical education should be developed (Pearlman et al., 2024).

Health literacy communication practices are essential for professional medical education and patients. Patient-doctor communication will be effective if health literacy is good. Finally, the treatment will be effective and the patient will obey the doctors' recommendation (Louizou et al., 2024).

However, there is a lack of information about the ways of developing literacy skills for medical students. This paper aims to describe how literacy skills in medical education can be developed.

METHOD

Research Design

This is a narrative literature review. Literature was taken from PubMed, Scopus, and Google Scholar, and the publication date was within 10 years.

DISCUSSION

Enhancing the literacy skills in medical education needs curriculum updates, critical evaluation, and

health literacy communication techniques. Health literacy communication skills can be taught by teaching the students how to avoid jargon and give effective questions. Selecting reliable content is the step to critical evaluation. Critical thinking is related to the ability to gather data, reassess, and reanalyze (Ali et al., 2022).

Customizing intervention and support for students' learning process can be done by exploring the learning habits. Self-testing and self-regulatory tools are useful for test-taking strategies and providing individualized support. Learning and Study Skills Inventory (LASSI) questionnaire can be used as an effective tool to assess the students' study behavior (Sullivan et al., 2024).

Curriculum update, workshop, and health literacy communication technique

A two-part curriculum is developed for medical students. The first part is an introductory session. The second part is a skill-building workshop. During the workshop, students learn and practice health literacy communication techniques such as teach-back, effective questioning, and avoiding jargon (Ali et al., 2022; Stone et al., 2021). The workshop could improve the student's skills in health literacy communication (Stone et al., 2021). Coaching students with simulation can raise awareness and reduce bias in interpreting resources (Tippit et al., 2024).

Critical thinking

Clinical thinking includes the knowledge and skills in collecting and integrating information to make a diagnosis and intervention. This competence is useful for solving clinical problems and improving patient outcomes. Critical thinking is the heart of medicine (Delavari et al., 2024)

Information literacy

Information literacy and digital competence need lifelong learning. Those competencies are crucial in private and professional life. The usage of internet resources is abundant nowadays. It has two sides and point of views. The first point of view is that the users (patients, students, and doctors) should have a good digital literacy to search and analyze the given information. Another point of view is the challenges of online misleading information (Ali et al., 2022; Mainz et al., 2024).

Critical thinking skills are essential for medical students in applying science. Every medical institution must apply the learning of critical thinking skills. Critical thinking skill consists of life-long learning and self-awareness (Permatasari et al., 2024)

Some recommendations for enhancing the information literacy skills in the medical education are as follows: using assignments and task-based studies, orientation sessions, giving attractive rewards, training of students, lecturers, and librarians, giving announcements and posters of using the literature effectively in the social media of students and library, and giving technical supports (Ali et al., 2022).

YouTube evaluation training can be given to enhance the students' information literacy competence. Lecturers select high-quality videos for students. Students can augment the learning process efficiently. Lecturers help students to evaluate the credibility and quality of the video (Pearlman et al., 2024).

The core competencies of practitioners' research literacy skills (PRLS) depict the interrelationships of Systems-Based Practice with other competency domains. The main competencies are patient care. Medical Knowledge (includes communication and professionalism), Practice-Based Learning, Systems-Based Practice (SBP), and Communications & Professionalism). Some important components of practitioners' research literacy skills can be described in Figure 1. The important rubric of PRLS can be found in Figure 2 (Cruser et al., 2014).

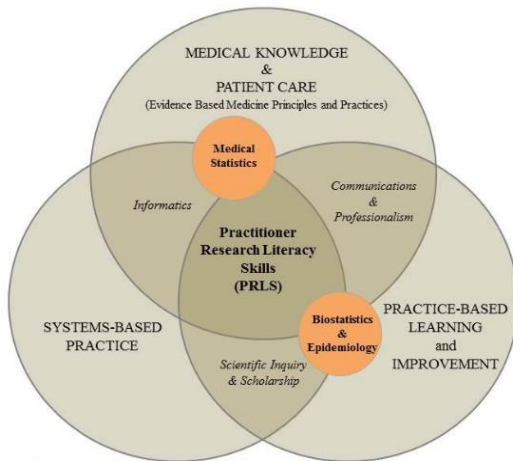


Figure 1. The Practitioner Research Literacy Skill (PRLS) (Cruser et al., 2014)

	Research Question and Testable Hypothesis			
	Remember and Discriminate	Understand Concrete Concepts	Apply Rule Using	Evaluate Problem Solving
KNOW	Recognize definitions of Research Questions and Hypothesis	Definitions of population, sample, measurement, outcome	Recognize strategies such as PICO for question formulation (Patient, Intervention, Comparison, Outcome)	Identify the question or hypothesis in a given article
COMPREHEND	Differentiate between Research Questions and Testable Hypothesis	Understand how sample and population are related to hypothesis testing	Be able to use strategies such as PICO for question formulation (Patient, Intervention, Comparison, Outcome)	Discuss the question and hypothesis of a given article
APPLY	Be able to identify an appropriate research question and hypothesis for a given clinical scenario	Understand role of measurement and outcome in creating a testable hypothesis and how variables are measured (types of variables)	Be able to identify outcome measures and variables that relate to hypothesis testing in a given article	Articulate in a group a plausible testable hypothesis for future research based on a given article or clinical scenario
ANALYZE	Observing or working on a research team or as a research rotation to discuss the research questions related to the project	Review study methods, including measurement and sampling, within a research team setting	Operationalize variables for independent variables and outcomes	Participate in discussion with research team to formulate a testable hypothesis for a given research question including sample and possible outcomes measures
SYNTHESIZE & EVALUATE	Develop a research questions for research project that can be developed into testable hypothesis	Understand and identify appropriate possible outcomes and variables including type of variable measured to test hypothesis	Identify appropriate sampling strategy using inclusion and exclusion criteria	Develop a specific hypothesis for a research project including a testable hypothesis, sampling strategy, and operationalize outcomes measures

Figure 2. The Practitioner Research Literacy Skill (PRLS) rubric (Cruser et al., 2014)

CONCLUSION

In conclusion, literacy skills in medical education can be developed by improving the curriculum, training the students to have critical thinking skills, and teaching health literacy communication techniques.

ACKNOWLEDGEMENT

The author expresses gratitude to all of the committee who have prepared the conference very well.

DECLARATION OF POTENTIAL CONFLICT OF INTEREST

“Yuliana does not work for, consult, own shares in, or receive funding from any company or organization that would benefit from this manuscript, and has disclosed no affiliations other than those noted above.”

REFERENCE

Ali, I., Siddique, R., & Shahzad, K. (2022). Measuring Information Literacy Skills of MBBS Students. *Library Philosophy and Practice*, 1–32.

Cruser, A., Brown, S. K., Ingram, J. R., Papa, F., Podawiltz, A. L., Lee, D., & Knox, V. (2014). Medical Science Educator Practitioner Research Literacy Skills in Undergraduate Medical Education: Thinking Globally, Acting Locally. *Medical Science Educator*, 22(3s), 162–184. <https://doi.org/10.1007/BF03341781>

Delavari, S., Barzkar, F., Rikers, R. M. J. P., Pourahmadi, M., Arabshah, S. K. S., Keshtkar, A., Dargahi, H., Yaghmaei, M., & Monajemi, A. (2024). Teaching and learning clinical reasoning skills in undergraduate medical students: A scoping review. *Plos One*, 1–19. <https://doi.org/10.1371/journal.pone.0309606>

Louizou, E., Panagiotou, N., Dafli, E., Smyrnakis, E., & Bamidis, P. D. (2024). Medical Doctors Approaches and Understanding of Health Literacy: A Systematic Literature Review. *Cureus*, 16(1), 1–16. <https://doi.org/10.7759/cureus.51448>

Mainz, A., Nitsche, J., Weirauch, V., & Meister, S. (2024). Measuring the Digital Competence of Health Professionals: Scoping Review. *JMIR Medical Education*, 10, 1–16. <https://doi.org/10.2196/55737>

Pearlman, O., Konecny, L. T., & Cole, M. (2024). Information literacy skills of health professions students in assessing YouTube medical education content. *Frontiers in Education*, May, 1–11. <https://doi.org/10.3389/educ.2024.1354827>

Permatasari, T. O., Laksono, N. P., & Akturusiano, B. (2024). Critical Thinking Skills Level of

- Medical Students: Study In Private Faculty of Medicine. *Cirebon Annual Multidisciplinary International Conference (CAMIC 2024)*, 225–228.
- Stone, M., Bazaldua, O., & Morrow, J. (2021). Developing Health Literacy Communication Practices for Medical Students. *MedEd Portal*, 1–5.
- Sullivan, O., Education, M., Sullivan, S. O., Hageh, C. Al, Dimassi, Z., Alsoud, L. O., Presley, D., & Ibrahim, H. (2024). Exploring challenges in learning and study skills among first-year medical students : a case study. *BMC Medical Education*, 24, 1–9.
- Tippit, T. L., Chi, I., & Servey, J. T. (2024). A Model Curriculum For New Faculty Coaches in Undergraduate Medical Education. *Journal of Medical Education and Curricular Development*, 11, 1–8. <https://doi.org/10.1177/2382120523121789>