

Low Health Literacy (LHL): A Conniving Opponent of Patient Treatment Compliance

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Abstract

In order to access, comprehend, and use information to make decisions about their health, people must possess certain personal traits and social resources, which are referred to as health literacy. Patients' ability to engage in complex disease management and self-care is strongly related to their level of health literacy. It can help us stay healthy by preventing illness and effectively managing existing illnesses. Personal health literacy refers to a person's ability to locate, comprehend, and apply information and services to support health-related decisions and actions for themselves and others. The World Health Organization recommends health literacy as a tool for achieving several key targets outlined in the Sustainable Development Goals. Low health literacy (LHL) is most commonly associated with mature patients with chronic health conditions who have limited education and are not necessarily from a lower income group. Furthermore, being literate in general does not imply being literate in health.

Keywords

parental health literacy;
necessary health education;
understanding treatment
guidelines; medication non-
adherence; healthcare



I. Introduction

People with limited health literacy may find it difficult to manage their condition and prevent illness, which may lead to increased use of healthcare services. Furthermore, LHL is associated with increased hospitalizations, increased use of emergency care, decreased use of preventative services, and a worsened ability to understand labels and health messages, a worsened state of health, higher mortality, and more expensive medical care. Health literacy improves a population's ability to care for themselves and aids in the reduction of health disparities. It has an impact on the use of health services, as well as on patient satisfaction and the physician-patient relationship. It is one of the major impediments to healthcare professionals adequately transmitting information to those under their care. Despite the negative implications of LHL, physicians are typically unaware of their patients' health literacy levels and their subsequent effects on their patients' outcomes.

II. Review of Literature

Many studies reveal that patients from high-income countries are not adequately adhering to medications as they are prescribed. Forgetfulness, confusion about the duration required for medication use, and mistrust about the overall efficacy of medication are among the reasons for non-adherence to diabetes management protocols in Middle Eastern countries (Mohiuddin, December 10, 2022). Conversely, after World War II, Taiwan faced severe poverty, but it is now the 8th largest economy in Asia and also the home of type 2 diabetes patients with more than 80% health literacy (Lovrić et al., 2022). A cross-

sectional study of 259 school leaders in Hong Kong carried out during the COVID-19 pandemic between April 2021 and February 2022 shows that more than 50% of participants had LHL, and their LHL was strongly associated with a negative attitude about vaccination, low information, and confusion about COVID-19-related information (Lau et al., 2022).



Figure 1. Low Health Literacy Facts

However, in this editorial, I would like to present a few more sensational facts in the form of an infographic model about LHL:

- A. LHL is associated with people who cherish superstitions and stigma within their preset narrow mind, which prevents them from gathering relevant health information from their surroundings (van der Heide et al., 2013).
- B. LHL has a significant impact on patients' treatment guideline compliance, or, more directly, medication adherence, which leads to poorer health outcomes, higher healthcare costs, increased hospitalizations, and even higher mortality rates (Mohiuddin, 2020).
- C. Only 12% of Americans have adequate health literacy, and improving health literacy could prevent nearly 1 million hospital visits and save more than \$25 billion per year, according to the US Centers for Disease Control and Prevention (CDC) (US CDC, 2021).
- D. The global economic cost of illiteracy is estimated to be \$1.19 trillion, but LHL alone costs the US economy \$238 billion per year (Shahid et al., 2022).
- E. Both are found in both developed and developing countries around the world, and socioeconomic factors are not the only cause of LHL (UCL Institute of Health Equity/Public Health England, 2015).
- F. Surprisingly, nearly 40% of US and UK adults have LHL, compared to around 50% of Europeans, 60% of adults in Canada, Australia, and the UAE, and nearly 70% of Chinese (Mohiuddin December 19, 2022).
- G. In China, health literacy increased from 6.48% of the population in 2008 to 23.15% in 2020 (Li et al., 2022). However, only 1 in 5 military health providers of the Chinese People's liberation Army had adequate health literacy, found in a recent survey published in BMC Public Health (Rong et al., 2023).
- H. Evidence suggests that LHL has significant economic consequences at the individual, employer, and healthcare system levels (Kruk et al., 2018).
- I. The authors of the Hamburg Diabetes Prevention Survey, a population-based cross-sectional study in Germany, concluded that LHL is a significant risk factor for the metabolic syndrome's three conditions: obesity, diabetes, and hypertension (Tajdar et al., 2022).
- J. Age, place of residence, education, and family status all have an impact on health literacy (Šulinskaitė et al., 2022).
- K. More than half of Dutch health providers use health literacy-specific materials only infrequently (Murugesu et al., 2022).
- L. Mistrust and LHL perceptions were linked to high levels of vaccine hesitancy, providing evidential support for portraying these factors as perceived barriers to COVID-19 vaccine uptake (Weerakoon et al., 2022).
- M. LHL is not uncommon among patients with a high level of education or with well-off patients. Moreover, patients with LHL, but with high education, had a higher probability of emergency department re-visits (Shahid et al., 2022).
- N. According to patient-centered interventions, improving health literacy can reduce the risk of polypharmacy, medication non-adherence, and healthcare costs (Shebehe et al., 2022).
- O. According to the 1996-2017 Medical Expenditure Panel Survey (Cheng & Tanna, 2022), LHL was more prevalent in glaucoma patients, and patients with LHL were prescribed more medications and had higher medication costs.
- P. Nearly 35% of diabetic patients worldwide have limited health-related education (Abdullah et al., 2019).

- Q. LHL is linked to gestational diabetes, maternal stress and depression, low birth weight, stillbirth, and congenital malformations during pregnancy and birth, all of which have negative consequences for the woman and her child (Meldgaard et al., 2022).
- R. Empirical research based on a conceptual model estimated that low health literacy costs between 7 and 17% of total healthcare expenditures (Shahid et al., 2022).
- S. The prevalence of LHL in the emergency department (ED) varies greatly, with estimates as high as 88% depending on the patient mix and screening instruments used (Griffey et al., 2014).
- T. In both low and high-income countries, low parental health literacy was linked to poorer child health outcomes (Zaidman et al., 2022).
- U. Patients who are older, have less education, a lower income, and have chronic conditions are more vulnerable (Hickey et al., 2018).
- V. LHL was discovered in more than 70% of formal paid caregivers of non-self-supporting older adults in Tuscany, Italy, and in more than 50% of caregivers of heart failure patients in the United States (Lorini et al., 2022).
- W. People with low health literacy may have 1.5-3 times the number of serious health outcomes, such as higher mortality, hospitalization rates, and disease management ability, as those with adequate health literacy (Gan et al., 2022).
- X. In cardiac patients, it has been linked to increased mortality, hospital readmission, and lower quality of life (Kanejima et al., 2022).
- Y. LHL represents nearly 50% of Germans (Achstetter et al., 2022). In Germany, every fourth to fifth person is not immunized against COVID-19 (Bosle et al., 2022).
- Z. According to a Waystar (Health Care Billing Software) report from 2019, nearly 40% of healthcare consumers were unaware that the cost of their healthcare varied across facilities (O'Mara et al., 2022).

III. Research Methods

Prioritized databases for public health topics included PubMed, ALTAVISTA, Embase, Scopus, Web of Science, and the Cochrane Central Registers. Along with other online sources, journals from Elsevier, Springer, Willey Online Library, and Wolters Kluwer were thoroughly searched.

IV. Results and Discussion

LHL contributes significantly to the healthcare system's incompetent socioeconomic culture. Health issues are not only overlooked but also neglected. It reflects how much health and wellbeing are overlooked in a community or country. Economic conditions should not be condemned because they persist in developed countries as well. LHL has grown to unbearable proportions all over the world. Health literacy includes reading, listening, analytical, decision-making skills, and the ability to apply them to health situations. Literacy can only be improved through health education, which necessitates multifaceted approaches. Many members of the health care team lack health literacy training, are unaware of ways to improve communication, and forget to use effective communication practices on a regular basis when providing care. Health care professionals require assistance and training to better understand health literacy and how to address it through clear communication strategies. Customized patient education, on the other hand,

engages, motivates, and strengthens patients to participate in their own health care and treatment decisions, resulting in better outcomes, fewer diagnostic tests, and significantly greater patient satisfaction.

V. Conclusion

Nonetheless, it goes without saying that health literacy is beneficial in addressing the health needs of even the most disadvantaged and marginalized communities. To improve adherence, patients need to clearly and appropriately understand health information related to their specific illness or disease. This understanding may be essential to helping patients generate the motivation, beliefs, and appropriate health behaviors needed to improve overall adherence. LHL is a curse; it has to be minimized. All healthcare providers, stakeholders, and even government and community authorities should work on it.

References

- Abdullah, A., Liew, S. M., Salim, H., Ng, C. J., & Chinna, K. (2019). Prevalence of limited health literacy among patients with type 2 diabetes mellitus: A systematic review. *PLOS ONE*, 14(5), e0216402. <https://doi.org/10.1371/journal.pone.0216402>
- Achstetter, K., Köppen, J., Haltaufderheide, M., Hengel, P., Blümel, M., & Busse, R. (2022). Health literacy of people with substitutive private health insurance in Germany and their assessment of the health system performance according to Health Literacy Levels: Results from a survey. *International Journal of Environmental Research and Public Health*, 19(24), 16711. <https://doi.org/10.3390/ijerph192416711>
- Bosle, C., Orth, B., Reibling, N., Merkel, C., Muschalik, C., & von Räden, U. (2022). Health information behaviour and health literacy on COVID-19 vaccination of the general population in Germany-findings from the CoSiD study (Article in German). *Federal Health Gazette (Springer)*, 65(12), 1289–1298. <https://doi.org/10.1007/s00103-022-03617-9>
- Cheng, B. T., & Tanna, A. P. (2022). Association of Health Literacy and healthcare utilization among glaucoma patients. *Journal of Glaucoma*, Publish Ahead of Print. <https://doi.org/10.1097/ijg.0000000000002133>
- Gan, W., Zhang, Q., Yang, D., Yin, J., Wang, Y., Song, L., Chen, T., & Qi, H. (2022). A behavior change wheel-based Interactive Pictorial Health Education Program for hypertensive patients with low blood pressure health literacy: Study protocol for a randomized controlled trial. *Trials (BMC)*, 23(1), 369. <https://doi.org/10.1186/s13063-022-06300-1>
- Griffey, R. T., Kennedy, S. K., McGownan, L., Goodman, M., & Kaphingst, K. A. (2014). Is low health literacy associated with increased emergency department utilization and recidivism? *Academic Emergency Medicine*, 21(10), 1109–1115. <https://doi.org/10.1111/acem.12476>
- Hickey, K. T., Masterson Creber, R. M., Reading, M., Sciacca, R. R., Riga, T. C., Frulla, A. P., & Casida, J. M. (2018). Low health literacy: Implications for managing cardiac patients in practice. *The Nurse Practitioner*, 43(8), 49–55. <https://doi.org/10.1097/01.npr.0000541468.54290.49>
- Kanejima, Y., Shimogai, T., Kitamura, M., Ishihara, K., & Izawa, K. P. (2022). Impact of health literacy in patients with cardiovascular diseases: A systematic review and meta-analysis. *Patient Education and Counseling*, 105(7), 1793–1800. <https://doi.org/10.1016/j.pec.2021.11.021>

- Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., Adeyi, O., Barker, P., Daelmans, B., Doubova, S. V., English, M., García-Elorrio, E., Guanais, F., Gureje, O., Hirschhorn, L. R., Jiang, L., Kelley, E., Lemango, E. T., Liljestrand, J., ... Pate, M. (2018). High-quality health systems in the Sustainable Development Goals Era: Time for a revolution. *The Lancet Global Health*, 6(11), e1196–e1252. [https://doi.org/10.1016/s2214-109x\(18\)30386-3](https://doi.org/10.1016/s2214-109x(18)30386-3)
- Lau, S. S., Shum, E. N., Man, J. O., Cheung, E. T., Amoah, P. A., Leung, A. Y., Dadaczynski, K., & Okan, O. (2022). Covid-19-related health literacy of school leaders in Hong Kong: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 19(19), 12790. <https://doi.org/10.3390/ijerph191912790>
- Li, Y., Lv, X., Liang, J., Dong, H., & Chen, C. (2022). The development and progress of Health Literacy in China. *Frontiers in Public Health*, 10, 1034907. <https://doi.org/10.3389/fpubh.2022.1034907>
- Lorini, C., Buscemi, P., Mossello, E., Schirripa, A., Giammarco, B., Rigon, L., Albora, G., Giorgetti, D., Biamonte, M. A., Fattorini, L., Bruno, R. M., Giusti, G., Longobucco, Y., Ungar, A., & Bonaccorsi, G. (2022). Health literacy of informal caregivers of older adults with dementia: Results from a cross-sectional study conducted in Florence (Italy). *Aging Clinical and Experimental Research*, 35(1), 61–71. <https://doi.org/10.1007/s40520-022-02271-0>
- Lovrić, B., Placento, H., Farčić, N., Lipič Baligač, M., Mikšić, Š., Mamić, M., Jovanović, T., Vidić, H., Karabatić, S., Cviljević, S., Zibar, L., Vukoja, I., Barać, I. (2022). Association between health literacy and prevalence of obesity, arterial hypertension, and diabetes mellitus. *International Journal of Environmental Research and Public Health*, 19(15), 9002. <https://doi.org/10.3390/ijerph19159002>
- Meldgaard, M., Gamborg, M., & Terkildsen Maindal, H. (2022). Health literacy levels among women in the prenatal period: A systematic review. *Sexual & Reproductive Healthcare*, 34, 100796. <https://doi.org/10.1016/j.srhc.2022.100796>
- Mohiuddin, A. K. (2020). Chapter 11. The Enigma of Patient Behavior. In *The role of the pharmacist in patient care: Achieving high quality, cost-effective and accessible healthcare through a team-based, patient-centered approach* (pp. 189–210). Universal-Publishers. ISBN-10: 1627343083, ISBN-13: 9781627343084
- Mohiuddin, A. K. (December 19, 2022). Low Health Literacy: Treacherous Foe of Patient Compliance in Developed Countries. *Annals of Epidemiology & Public Health*, 5(2), 1097.
- Mohiuddin, A. K. (December 10, 2022). Medication adherence: Fact or fictions? *Current Research in Public Health*, 2(1), 18–21. <https://doi.org/10.31586/crph.2022.533>
- Murugesu, L., Heijmans, M., Rademakers, J., & Franssen, M. P. (2022). Challenges and solutions in communication with patients with low health literacy: Perspectives of Healthcare Providers. *PLOS ONE*, 17(5), e0267782. <https://doi.org/10.1371/journal.pone.0267782>
- O'Mara, C. S., Young, J. P., & Winkelmann, Z. K. (2022). Financial Health Literacy and the shared decision-making process in healthcare. *International Journal of Environmental Research and Public Health*, 19(11), 6510. <https://doi.org/10.3390/ijerph19116510>
- Rong, H., Lu, L., Wang, L., Liu, C., Zhang, L., Li, F., Yi, D., Lei, E., Zheng, C., Meng, Q., & Chen, J.-an. (2023). Investigation of health literacy status and related influencing factors in military health providers of Chinese People's Liberation Army, a cross-

- sectional study. *BMC Public Health*, 23(1), 4. <https://doi.org/10.1186/s12889-022-14958-0>
- Shahid, R., Shoker, M., Chu, L. M., Frehlick, R., Ward, H., & Pahwa, P. (2022). Impact of low health literacy on patients' health outcomes: A multicenter cohort study. *BMC Health Services Research*, 22(1), 1148. <https://doi.org/10.1186/s12913-022-08527-9>
- Shebehe, J., Montgomery, S., Hansson, A., & Hiyoshi, A. (2022). Low health literacy and multiple medications in community-dwelling older adults: A population-based Cohort Study. *BMJ Open*, 12(2), e055117. <https://doi.org/10.1136/bmjopen-2021-055117>
- Šulinskaitė, K., Zagurskienė, D., & Blaževičienė, A. (2022). Patients' health literacy and Health Behaviour Assessment in primary health care: Evidence from a cross-sectional survey. *BMC Primary Care*, 23(1), 223. <https://doi.org/10.1186/s12875-022-01809-5>
- Tajdar, D., Schäfer, I., Lühmann, D., Fertmann, R., Steinberg, T., van den Bussche, H., & Scherer, M. (2022). The link between health literacy and three conditions of metabolic syndrome: Obesity, diabetes and hypertension. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*, 15, 1639–1650. <https://doi.org/10.2147/dms0.s363823>
- UCL Institute of Health Equity/Public Health England. (2015, September). Local action on health inequalities-Improving health literacy to reduce health inequalities. UK Government Publishing Service. Retrieved January 16, 2023, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/460710/4b_Health_Literacy-Briefing.pdf
- US CDC. (2021, May 21). Health Literacy Basics-Talking points about health literacy. Centers for Disease Control and Prevention. Retrieved January 16, 2023, from <https://www.cdc.gov/healthliteracy/shareinteract/TellOthers.html>
- van der Heide, I., Wang, J., Droomers, M., Spreeuwenberg, P., Rademakers, J., & Uiters, E. (2013). The relationship between health, education, and Health Literacy: Results from the Dutch adult literacy and Life Skills Survey. *Journal of Health Communication*, 18(sup1), 172–184. <https://doi.org/10.1080/10810730.2013.825668>
- Weerakoon, S. M., Henson-Garcia, M., Valerio-Shewmaker, M. A., Messiah, S. E., & Knell, G. (2022). Contributions of trustworthiness, health literacy, and self-efficacy in communicating with COVID-19 vaccine-hesitant audiences: Web-based survey study. *JMIR Formative Research*, 6(8), e38076. <https://doi.org/10.2196/38076>
- Zaidman, E. A., Scott, K. M., Hahn, D., Bennett, P., & Caldwell, P. H. Y. (2022). Impact of parental health literacy on the health outcomes of children with chronic disease globally: A systematic review. *Journal of Pediatrics and Child Health*, 59(1), 12–31. <https://doi.org/10.1111/jpc.16297>