OXFORD JOURNAL
OF STUDENT
SCHOLARSHIP

AI Literacy, Attitudes Towards AI, and AI for Mental Wellbeing Among Healthcare Professionals and Students

Emily Lin, Nabeela Kajee
emilyl8806@gmail.com

ABSTRACT

Artificial intelligence (AI) has established a place in medicine globally. However, the implications that AI has on healthcare professionals' (HCPs) AI literacy and use for wellbeing is still a developing question. This review will explore two areas: AI literacy and attitudes towards AI among healthcare workers and students, and their use of AI for mental wellbeing. A comprehensive scoping review was conducted across the following databases: PubMed, Cochrane Library, Google Scholar, Grey Literature, and reference snowballing. The review included 1. Studies including HCPs and students, 2. The study examined AI literacy or attitudes towards AI or supported mental wellbeing, 3. Internationally. The review excluded 1. Studies published before 2021, 2. Non-English studies, and 3. Study protocols without results. N=13 (n=4,887 stated participants) articles met all of the inclusion criteria and were included in the review. Studies explored AI literacy and attitudes towards AI among healthcare workers and students. Findings in other studies also suggested potential benefits of AI usage for personal mental wellbeing, though limitations remain.Given the novel nature of AI into healthcare, the literature remains exploratory. The existing research emphasizes the significance of AI literacy in the medical field. The potential applications of AI for mental wellbeing are present, however ethical concerns hinder it. Research on AI literacy, attitudes towards AI, and personal mental wellbeing is limited, with long-term effects remaining unclear. We recommend future studies that focus on qualitative inquiry and a longitudinal lens.

.

INTRODUCTION

Artificial Intelligence (AI) is increasingly being adopted into the health professions both in the workplace, and in intervention (Teng et al., 2022). A cross-sectional survey in Pakistan evaluated healthcare professionals’ (HCPs) and students' attitudes, knowledge, and perceptions of AI in healthcare. (Habib, Hoodbhoy & Siddiqui, 2024). Research evaluating the perceptions of AI in health systems has gained traction (Shishehgar et al., 2025). As AI’s relevance in healthcare expands, higher education systems are beginning to recognize the importance of AI literacy (Shishehgar et al., 2025). AI teaching is now being implemented in healthcare professions’ education in various settings (Lomis et al., 2021).

The majority of HCPs and students have general knowledge on the concept of AI, but many have never been formally trained. Studies have shown the gap in formal training increases reluctance to use AI;

however, this reluctance coexists with optimism. Stewart et al. (2023) and Teng et al. (2022) both noted participants open to learning AI skills despite limited formal instruction. Likewise, scoping evidence suggests that AI educational programs remain limited in scope (Charow et al., 2021). A recently published article by Ang et al. (2026) develops and defines the parameters for a new AI literacy scale. This scale is specific to HCPs and sets a quantitative measurement of their AI literacy.

Though there are many perceived benefits regarding AI's use in a clinical setting, researchers have identified various limitations concerning overgeneralization, privacy, confidentiality, and ethical considerations (Sharif et al., 2025). Given the gaps in training internationally across AI, the possible harm from improper AI use is documented in the literature (Stewart et al., 2023). Many students agreed that AI should be used with careful consideration because of the lack of empathy AI may demonstrate (Habib, Hoodbhoy & Siddiqui, 2024). Another point to take into consideration is the language AI chatbots are being coded in, and the primary language it produces. The translation across English to different languages by AI may hinder the accuracy of the information (Tangadulrat et al., 2023).

A qualitative descriptive study based in Canada implies that the role of AI is to support those in the medical field, not completely replace them (Zhang et al., 2023). A scoping review of mental healthcare workers similarly describes AI as something that will not replace them. A 2023 cross-sectional study in Western Australia (Stewart et al., 2023) found that medical students showed greater optimism about implementing AI in healthcare. Residents and attending staff showed more reluctance (Stewart et al., 2023). Additionally, students generally display higher AI readiness and preparedness (Stewart et al., 2023).

AI is capable of handling tedious administrative tasks that require a substantial amount of time (Lomis et al., 2021). Helping with scheduling, organization, and medical billing can be done efficiently with AI (Lomis et al., 2021). A discussion paper published by Lomis et al. (2021, p.8) projects that AI integration could potentially reduce the workload in healthcare providers by up to 50%.

Research question: What does the current literature report about AI literacy and the attitudes towards AI, and the role of AI for HCPs wellbeing?

Aim: To conduct a scoping review that maps the existing evidence for the role of AI literacy and attitudes towards AI, and for mental wellbeing among healthcare workers and students.

METHODS

Search Strategy

A comprehensive scoping review was conducted using PubMed, Cochrane Library, Google Scholar, and included Grey Literature and reference snowballing. EL conducted the first search, supported by input from a specialist librarian and second author, who helped develop the string. The string used boolean operators (AND, OR), and truncation. Additionally, it combined the 3 concept blocks: AI terms, mental

wellbeing terms, and HCPs terms (see Appendix B). Studies on AI literacy and attitudes towards AI were identified through the same search string. Titles and abstracts were both screened by EL and NK. The full text was screened by EL and discussed with NK.

Search Terms: Key terms are defined in Appendix A. The search string is included in Appendix B.

Inclusion and Exclusion Criteria

Studies were included if all of the following were present: 1. any study design which included HCPs or healthcare students as participants; 2. Any study that examined AI literacy or attitudes towards AI or the use of AI to support mental wellbeing in HCPs 4. conducted in any country.

Studies were excluded if: 1. Studies published prior to 2021; 2. written in a language other than English. 3. Protocols without results.

Analysis and Synthesis

Notes and data from included studies were charted in a summary table (Supplement A), which recorded study type, country, and key findings. Studies were grouped into two strands. The first strand was AI literacy and attitudes towards AI, which covered HCPs and students perceptions, knowledge, and previous training with AI. The second strand, how AI can positively assist mental wellbeing. This covered studies that examined HCPs' and students' personal use of AI to support their own mental wellbeing rather than for patient outcomes. Findings were synthesized within each strand and recorded things such as region, profession, and level of experience. Where studies addressed both strands, the connection between AI literacy or attitudes towards AI was noted in its connection with mental wellbeing. A formal critical appraisal study was not conducted.

RESULTS

Demographic Spread

The N=13 articles that met all of the inclusion criteria consisted of N=6 cross-sectional studies, N=1 qualitative descriptive study, N=1 randomized controlled trial, N=1 psychometric validation study, N=1 scoping reviews, N=1 scenario analysis, N=1 systematic review, and finally N=1 discussion paper. A total of N=8 articles gave a specific participant count, totaling n=4,887. Appendix D only references the reported count for occupations, so the summation will not equal 4,887.

AI Literacy and Attitudes Towards AI Among Healthcare Professionals and Students

AI literacy was regularly discussed as an important element in the studies that were included in this scoping review. Many of these studies asserted that AI literacy was crucial to the development of AI within healthcare. The majority of the participants across nearly all of the studies claimed they knew what AI was, but never received formal training to properly use AI. Due to a lack of formal training and competency in AI literacy, hesitancy surrounded the implementation of AI in practice. However, young HCPs who had just graduated tended to have less AI awareness and were more reluctant to accept AI in

healthcare (Sharif et al., 2025). Several studies reported participants expressing less hesitancy when AI literacy increased. Additionally, students and professionals both indicated the importance of implementing proper AI education and training within undergraduate education to prepare for the future of AI in healthcare. The development of a new AI literacy scale by Ang et al. (2026) further demonstrates the significance of AI literacy for the integration of AI in healthcare.

Furthermore, a cross-sectional study by Sharif et al. (2025) surveyed 251 mental health professionals. The data noted that AI literacy varied across the sample, with 27.1% reporting prior AI training.

AI for Personal Mental Wellbeing Among HCPs and Students

A randomized controlled trial in Malawi evaluated the effectiveness of AI chatbots in supporting the mental wellbeing of qualified HCPs, N=1,584 randomized; n=511 completed both baseline and final anxiety assessments (Kleinau et al., 2024). When compared to the control group, the findings showed a statistically significant decrease in depression in addition to changes in resilience and anxiety that were statistically significant aswell (Kleinau et al., 2024).

A cross-sectional study by Albikawi et al. (2025) surveyed undergraduate nursing students in Jordan and reported that 1 in 5 students were already using AI tools as mental wellbeing support. The majority of students expressed optimism towards AI, however, concerns include: privacy concerns, preference for traditional psychological support, and algorithmic bias (Albikawi et al. 2025). Additionally, a scenario analysis by Arvai et al. (2026) explored future impacts of generative AI on medical students' mental health, though it contained no primary data nor empirical human participants.

Since the area of research behind AI's role in mental health is relatively new, evidence is limited. The evidence we do have, however, suggests positive implications of AI, as it may be a potential tool to alleviate burden and overall increase one's mental wellbeing. AI literacy for wellbeing in HCPs is a dominant aspect of this literature.

DISCUSSION

AI Literacy and Attitudes Towards AI

AI utilization in healthcare is increasingly becoming the norm. Although most policies and hospitals center AI use around patients, an important gap remains in understanding its impact on training and qualified HCPs themselves. This review examined the studies that turned the lens of AI on HCPs, focusing specifically on AI literacy and mental wellbeing.

As AI literacy became an increasingly prominent topic, Ang et al., (2026) developed an AI literacy scale specific to healthcare workers: SAIL-HCW (Scale for AI Literacy for Healthcare Workers). This scale suggests that having a general awareness of AI is not enough to be considered AI literate. This scale measures AI literacy across seven domains relevant to healthcare workers. These domains include: "1.) AI concept, 2.) data fluency, 3.) AI evaluation, 4.) AI in practice, 5.) ethics and regulation, 6.) AI in

system, 7.) continuous learning". Therefore, to be considered AI literate, one must not only know what AI is and what it can do, but also understand how to properly use it in practice, apply ethical considerations, and address privacy concerns. The significance of SAIL-HCW lies in understanding the importance of incorporating AI education in healthcare in order to prepare future HCPs to responsibly utilize AI.

AI for Personal Mental Wellbeing

As AI chatbots remain a new topic, research is still very narrow and is unable to determine if resorting to chatbots as a resource for an extended period of time is healthy and sustainable. While AI tools can offer administrative benefit and psychological support, the current research behind it is shallow. Concerns regarding data privacy, accuracy, and the lack of human empathy require further research rather than the assumption that technology will fix it.

Even though mental wellbeing is important to fully understand in the context of AI before we can properly apply AI in that domain, very few studies have directly addressed mental wellbeing when discussing AI's role. The limited number of studies, however, makes it difficult to assess whether the given findings are consistent. Implications for future research include identifying more gaps in AI in healthcare, specifically regarding mental wellbeing, and determining whether it is feasible long-term for HCPs and medical students. Despite the benefits AI may demonstrate, concerns surrounding privacy, personal data breaches, a lack of nuanced understanding, lack of ethical considerations, and legal issues pertaining to medical malpractice AI all may cause hesitancy toward further incorporation.

Challenges and Future Research

Given the developing role of generative AI in the public domain, the research surrounding AI may present hidden challenges and limitations. Concerns surround the over-reliance of HCPs on AI before research is advanced enough to determine the potential harms on HCPs. Although some studies suggest potential benefits of AI in healthcare, current evidence does not establish its long-term effects on HCPs' workload or personal mental wellbeing. Indeed, no long-term benefits have been studied, because AI has not been in use long enough to draw conclusions about time-dependent outcomes. This suggests the need for an increase in longitudinal studies to more reliably determine the role of AI in mental health. Qualitative narrative work is important in early research because it can identify new perspectives through personal experiences that may be overlooked in standardized measurements. Especially in early research, this is critical for further improvements in AI and more careful consideration for later integration in healthcare.

Various concerns regarding cybersecurity, scattered attention in users, and disruptions in empathy, typically remain underresearched in the current literature. There was no included study that directly addressed the concerns regarding cybersecurity and the future implications. Additionally, the problems surrounding scattered attention and disruptions in empathy, particularly in HCPs, were also largely overlooked in the included studies. These underexplored areas of the literature suggest a direction for future research when considering the long-term impact as AI supports HCPs.

Limitations

Due to the limited number of studies (N=3) examining AI use for personal mental wellbeing among HCPs and healthcare students, findings in this review should be understood in the context of early research. A limitation of some of the studies included in the review is variable reporting of participant demographic data. Also, no specific study was reported from South America. Due to resource constraints, only English-language studies could be included.

Strengths

An important strength of the study is the timely nature of this work, in the context of increasing AI integration in healthcare. It is useful to understand the developing research and how AI can benefit HCPs themselves, not just their patients. This study also provides a broad review of AI literacy, attitudes towards AI among HCPs and students, alongside AI applications for HCPs and students mental wellbeing. Two independent researchers screened the articles for inclusion. The search strategy was developed collaboratively to include pertinent search terms.

CONCLUSION

This review aimed to better understand the evidence surrounding AI literacy, attitudes, and for applications of AI for HCPs mental wellbeing. Given how relatively young the field of AI is, and how recent adoption has been in HCP settings, it is unsurprising that AI literacy is still catching up. The development of tools such as SAIL-HCW provides an example of how AI literacy can be assessed among healthcare workers. However, the long-term effects of AI have yet to be seen. The sustainability, equity, cybersecurity, overdependence, scattered attention, disruptions in empathy are questions that surround using AI for future mental wellbeing interventions for HCPs. The included literature also identifies parts of AI that are explored in this review, including privacy concerns, ethical considerations, AI errors/hallucinations. Future research is recommended to explore the qualitative, and long term influence of AI on HCPs.

REFERENCES

Albikawi, Z., Abuadas, M., & Rayani, A. M. (2025). Nursing Students' Perceptions of AI-Driven Mental Health Support and Its Relationship with Anxiety, Depression, and Seeking Professional Psychological Help: Transitioning from Traditional Counseling to Digital Support. *Healthcare (Switzerland)*, *13*(9). https://doi.org/10.3390/healthcare13091089

Ang, C. S., Ito, S., Bajaj, S., Chow, M., Cleland, J., & Heaversedge, J. (2026). The Scale for AI Literacy in Health Care Workers: Development and Validation. *Journal of Medical Internet Research*, *28*, e92373. https://doi.org/10.2196/92373

Arvai, N., Meskó, B., & Katonai, G. (2026). Generative AI's Impact on the Mental Health of Medical Students: Scenario Analysis. *JMIR Medical Education*, *12*. https://doi.org/10.2196/85373

Charow, R., Jeyakumar, T., Younus, S., Dolatabadi, E., Salhia, M., Al-Mouaswas, D., Anderson, M., Balakumar, S., Clare, M., Dhalla, A., Gillan, C., Haghzare, S., Jackson, E., Lalani, N., Mattson, J., Peteanu, W., Tripp, T., Waldorf, J., Williams, S., … Wiljer, D. (2021). Artificial Intelligence Education Programs for Health Care Professionals: Scoping Review. In *JMIR Medical Education* (Vol. 7, Issue 4). JMIR Publications Inc. https://doi.org/10.2196/31043

Ferrara, E. (2024). Large Language Models for Wearable Sensor-Based Human Activity Recognition, Health Monitoring, and Behavioral Modeling: A Survey of Early Trends, Datasets, and Challenges. In *Sensors* (Vol. 24, Issue 15). Multidisciplinary Digital Publishing Institute (MDPI). https://doi.org/10.3390/s24155045

Habib, M. M., Hoodbhoy, Z., & Siddiqui, M. A. R. (2024). Knowledge, attitudes, and perceptions of healthcare students and professionals on the use of artificial intelligence in healthcare in Pakistan. *PLOS Digital Health*, *3*(5). https://doi.org/10.1371/journal.pdig.0000443

Janiesch, C., Zschech, P., & Heinrich, K. (2021). Machine learning and deep learning. *Electronic Markets, 31*(3), 685–695. https://doi.org/10.1007/s12525-021-00475-2

Jarden, A., & Roache, A. (2023). What Is Wellbeing? In *International Journal of Environmental Research and Public Health* (Vol. 20, Issue 6). MDPI. https://doi.org/10.3390/ijerph20065006

Kleinau, E., Lamba, T., Jaskiewicz, W., Gorentz, K., Hungerbuehler, I., Rahimi, D., Kokota, D., Maliwichi, L., Jamu, E., Zumazuma, A., Negrão, M., Mota, R., Khouri, Y., & Kapps, M. (2024). Effectiveness of a chatbot in improving the mental wellbeing of health workers in Malawi during the COVID-19 pandemic: A randomized, controlled trial. *PLoS ONE*, *19*(5 5). https://doi.org/10.1371/journal.pone.0303370

Knight, Anneyce., & McNaught, Allan. (2011). *Understanding wellbeing : an introduction for students and practitioners of health and social care*. Lantern Publishing Limited.

Lomis, K., Jeffries, P., Palatta, A., Sage, M., Sheikh, J., Sheperis, C., & Whelan, A. (2021). Artificial intelligence for health professions educators. *NAM Perspectives*. Discussion Paper, National Academy of Medicine, Washington, DC. https://doi.org/10.31478/202109a

Nagel, D. A., Naccarato, T. T., Philip, M. T., Ploszay, V. K., Winkler, J., Sanchez-Ramirez, D. C., & Penner, J. L. (2022). Understanding Student-Run Health Initiatives in the Context of Community-Based Services: A Concept Analysis and Proposed Definitions. In *Journal of Primary Care and Community Health* (Vol. 13). SAGE Publications Inc https://doi.org/10.1177/21501319221126293

Sharif, L., Almabadi, R., Alahmari, A., Alqurashi, F., Alsahafi, F., Qusti, S., Akash, W., Mahsoon, A., Poudel, D. B., Sharif, K., & Wright, R. (2025). Perceptions of mental health professionals towards

artificial intelligence in mental healthcare: a cross-sectional study. *Frontiers in Psychiatry*, *16*. https://doi.org/10.3389/fpsyt.2025.1601456

Shishehgar, S., Murray-Parahi, P., Alsharaydeh, E., Mills, S., & Liu, X. (2025). Artificial Intelligence in Health Education and Practice: A Systematic Review of Health Students' and Academics' Knowledge, Perceptions and Experiences. In *International Nursing Review* (Vol. 72, Issue 2). John Wiley and Sons Inc. https://doi.org/10.1111/inr.70045

Stewart, J., Lu, J., Gahungu, N., Goudie, A., Fegan, P. G., Bennamoun, M., Sprivulis, P., & Dwivedi, G. (2023). Western Australian medical students' attitudes towards artificial intelligence in healthcare. *PLoS ONE*, *18*(8 August). https://doi.org/10.1371/journal.pone.0290642

Tangadulrat, P., Sono, S., & Tangtrakulwanich, B. (2023). Using ChatGPT for Clinical Practice and Medical Education: Cross-Sectional Survey of Medical Students' and Physicians' Perceptions. *JMIR Medical Education*, *9*(1). https://doi.org/10.2196/50658

Teng, M., Singla, R., Yau, O., Lamoureux, D., Gupta, A., Hu, Z., Hu, R., Aissiou, A., Eaton, S., Hamm, C., Hu, S., Kelly, D., MacMillan, K. M., Malik, S., Mazzoli, V., Teng, Y. W., Laricheva, M., Jarus, T., & Field, T. S. (2022). Health Care Students' Perspectives on Artificial Intelligence: Countrywide Survey in Canada. *JMIR Medical Education*, *8*(1). https://doi.org/10.2196/33390

Transforming and scaling up health professionals' education and training : World Health Organization guidelines 2013. (2013). World Health Organization.

Zhang, M., Scandiffio, J., Younus, S., Jeyakumar, T., Karsan, I., Charow, R., Salhia, M., & Wiljer, D. (2023). The Adoption of AI in Mental Health Care-Perspectives From Mental Health Professionals: Qualitative Descriptive Study. *JMIR Formative Research*, *7*(1). https://doi.org/10.2196/47847

Appendix A

Table Representing Key Definitions

Key Term	Definition
Artificial Intelligence (AI)	AI is a field of computer intelligence designed to imitate human intelligence by performing tasks that involve advanced learning, problem solving, and logical reasoning (Simmons & Chappell, 1988). Rather than referring to AI as a singular system, AI encompasses different applications such as Large Language Models (language processing system, also known as LLM), (Ferrara, 2024) chatbots (an interactive conversational machine), wearables (devices that are worn to track physical health status), machine learning (algorithm based learning), and deep learning (ML learning driven by neural networks (Janiesch, Zschech & Heinrich, 2021).
Mental Wellbeing	Mental wellbeing represents an individual's emotional, psychological, and social state in everyday life (Jarden & Roache, 2023). Characteristics that are commonly associated with mental wellbeing are happiness, life satisfaction, the ability to cope, maintain relationships, and a sense of purpose (Knight &McNaught, 2011).
Healthcare	Healthcare refers to the services provided by professionals in order to identify, treat, and prevent medical conditions that include illness and physical injuries. Beyond the management of physical wellbeing, healthcare also consists of mental and social wellbeing (World Health Organization, 2013).
HCPs	HCPs are those who help maintain the health of others by studying, evaluating, diagnosing, treating and preventing any physical and mental impairments. These individuals do so by applying evidence based knowledge and specific medications in order to restore health (World Health Organization, 2013)
Healthcare Students	Healthcare students are individuals who currently study, practice, treat patients under the supervision of HCPs. These individuals do not have the capability to manage practices alone (Nagel et al., 2022).

Appendix References

Ferrara, E. (2024). Large language models for wearable sensor-based human activity recognition, health monitoring, and behavioral modeling: a survey of early trends, datasets, and challenges. Sensors, 24(15), 5045.

Janiesch, C., Zschech, P., & Heinrich, K. (2021). Machine learning and deep learning. *Electronic Markets, 31*(3), 685–695. https://doi.org/10.1007/s12525-021-00475-2

Jarden, A., & Roache, A. (2023). What Is Wellbeing? International Journal of Environmental Research and Public Health (Vol. 20, Issue 6). MDPI. https://doi.org/10.3390/ijerph20065006

Knight, Anneyce., & McNaught, Allan. (2011). Understanding wellbeing : an introduction for students and practitioners of health and social care. Lantern Publishing Limited.

Nagel, D. A., Naccarato, T. T., Philip, M. T., Ploszay, V. K., Winkler, J., Sanchez-Ramirez, D. C., & Penner, J. L. (2022). Understanding Student-Run Health Initiatives in the Context of Community-Based Services: A Concept Analysis and Proposed Definitions. In Journal of Primary Care and Community Health (Vol. 13). SAGE Publications Inc. https://doi.org/10.1177/21501319221126293

World Health Organization. (2013). *Transforming and scaling up health professionals' education and training: World Health Organization guidelines 2013*. World Health Organization. https://www.ncbi.nlm.nih.gov/books/NBK298950/

Appendix B

Search Strategy - Full Search String

Developed using boolean operators and truncation in collaboration with coauthor, and librarian team support AI OR LLM OR Deep Learning OR DL OR Machine Learning OR ML OR Large Language Models OR Agentic AI OR Wearable AI OR Chatbots OR ChatGPT OR Claude OR Gemini OR DeepSeek OR CoPilot OR Meta AI

AND

Mental wellbeing OR mental health OR wellbeing OR psychological wellbeing

AND

HCPs and students OR health professions OR HCWs OR hospital workers OR nurses OR doctors OR occupational therapists OR nutritionists OR physiotherapists OR radiologist OR specialists OR general

practitioners OR support workers OR physician assistants OR nursing assistants OR medical assistants OR medical trainees OR medical students OR allied health professionals OR allied health professional students

Appendix C

	Number of Included Studies (n=)
Canada	3
Saudi Arabia	2
Pakistan	1
Thailand	1
Australia	1
Malawi	1
Singapore	1
Hungary	1
United States of America	1
International	1

Appendix D

The following demographic only includes the reported occupations. ($N \neq \sum n$)
$n=3,513 \neq N= 4,887$

MBSS program students= 166
Medical doctorate=683
Undergraduate students=30
Post graduate students= 165
Medical students=124
BScN students= 50
Administrative=139
Nurses= 748

Nurse interns=24

Medical Interns=46

Resident staff=37

Attending staff=32

Allied Health=86

Medical=46

Pharmacy=195

Ancillary=24

Psychiatrist=20

Psychologist=34

Sociologist=16

Occupational therapy=249

Physical therapy=217

Speech language pathology=142

Dentistry=77

Social workers=52

Educator scientist=5

Mental health practitioner scientists=2

Psychiatrist practitioner scientists=3

Genetic counseling=35

Midwifery=22

Audiology=15

Medical laboratory science=10

Dietetics=1

Other=18

Appendix E

PRISMA Flow Chart

