Can Artificial Intelligence be used to teach Psychiatry and Psychology?: A Scoping Review

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Abstract

Background: Artificial Intelligence (AI) is increasingly integrated into healthcare, including psychiatry and psychology. In educational contexts, AI offers new possibilities for enhancing clinical reasoning, personalizing content delivery, and supporting professional development. Despite this emerging interest, a comprehensive understanding of how AI is currently used in mental health education, and the challenges associated with its adoption, remains limited.

Objective: This scoping review aims to identify and characterize current applications of AI in the teaching and learning of psychiatry and psychology. It also seeks to document reported facilitators and barriers to the integration of AI within educational contexts.

Methods: A systematic search was conducted across six electronic databases (MEDLINE, PubMed, Embase, PsycINFO, EBM Reviews, and Google Scholar) from inception to October 2024. The review followed PRISMA-ScR guidelines. Studies were included if they focused on psychiatry or psychology, described the use of an AI tool, and discussed at least one facilitator or barrier to its use in education. Data were extracted on study characteristics, population, AI application, educational outcomes, facilitators, and barriers. Study quality was appraised using several design-appropriate tools.

Results: From 6219 records, 10 studies met the inclusion criteria. Eight categories of AI applications were identified: clinical decision support, educational content creation, therapeutic tools and mental health monitoring, administrative and research assistance, natural language processing, program/policy development, student/applicant support, and professional development. Key facilitators included the availability of AI tools, positive learner attitudes, digital infrastructure, and time-saving features. Barriers included limited AI training, ethical concerns, lack of digital literacy, algorithmic opacity, and insufficient curricular integration. The overall methodological quality of included studies was moderate to high.

Conclusions: AI is being used across a range of educational functions in psychiatry and psychology, from clinical training to assessment and administrative support. While the potential for enhancing learning outcomes is clear, its successful integration requires addressing ethical, technical, and pedagogical barriers. Future efforts should focus on AI literacy, faculty development, and institutional policies to guide responsible and effective use. This review underscores the importance of interdisciplinary collaboration to ensure the safe, equitable, and meaningful adoption of AI in mental health education.

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Keywords: Artificial Intelligence; Medical Education; Psychiatry Education; Psychology Education; Machine Learning; Digital Health; Chatbots; Clinical Decision Support; e-Learning; Mental Health Training

Introduction

Cloud computing, artificial intelligence (AI), machine learning (ML), telehealth, digitally assisted diagnosis and treatment, and consumer-focused mobile health applications have all advanced over the past few decades and are now widely used in clinical care, scientific research, and self-management [1]. These developments have the potential to improve treatment outcomes, promote greater patient engagement, and enable earlier diagnosis and intervention [1]. In addition to enhancing conventional clinical procedures like teleconsultation and patient record management, these advancements have made way for fresh, data-driven methods of diagnosing and treating patients with a wide range of illnesses [2]. Particularly in the fields of psychology and psychiatry, new research keeps highlighting the expanding impact of AI online learning environments, and e-therapies: all of which are important in changing clinical practice, educational routes, and health policy [3,4]. As they provide new avenues for psychiatric condition screening, diagnosis, and monitoring, AI and ML have in fact attracted a lot of attention in the field of mental health care [3]. The goal of ML, a branch of artificial intelligence, is to empower computers to learn from data and make predictions or judgments by using statistical models and algorithms [5]. Potential applications of ML include predicting the effectiveness of antidepressant medicine, defining depression, estimating the risk of suicide, and predicting psychotic episodes in people with schizophrenia [6–13]. Self-guided mental health apps and web-based cognitive behavioral therapy modules are two examples of digital interventions that can provide innovative approaches to patient engagement, stigma reduction, and possibly closing systemic gaps in the delivery of health services [14].

However, any increase in accuracy or efficiency must be balanced against possible drawbacks, including algorithmic bias, concerns about data privacy, and the requirement for open systems to maintain patient confidence [15]. There are concerns over chatbots and other automated therapy tools' ability to give compassionate care and uphold therapeutic boundaries, despite being promoted as affordable ways to provide mental health help [16]. Therefore, the use of AI-based technologies (such as chatbots, virtual assistants, or automated therapy platforms) necessitates careful evaluation of any potential negative effects, such as algorithmic bias, transparency issues, patient confidentiality, and wider ethical issues [16,17]. The understanding that new digital technologies are already altering the patient-therapist interaction and posing important queries about the establishment and maintenance of therapeutic alliances in virtual environments further complicates the situation [18]. The traditional roles and responsibilities of health care providers may change because of the advent of automated evaluations and AI-driven therapy recommendations. As a matter of fact, soon clinicians will have to balance the results of algorithms with their professional judgment [2].

These factors highlight how important it is for psychologists, psychiatrists, and other medical practitioners to gain a thorough understanding of the ethical and therapeutic aspects of developing technology [19]. Numerous experts stress that substantial training for aspiring professionals is necessary for a meaningful integration of AI into mental health treatment, especially when it comes to e-therapy techniques or semi-automated diagnostics [19,20]. Beyond the purview of one's initial licensing, lifelong learning has become necessary considering these technological advancements to guarantee that mental health practitioners stay knowledgeable about the rapidly changing field of e-therapies and digital health solutions [21]. The requirements for certification and continuing education programs, which may include specific workshops, learning modules centered on digital proficiency, or periodic re-examinations, reflect these needs [22]. Education researchers warn that lectures or brief seminars alone will not be sufficient to close the knowledge gap; clinical and research experiences that enable practitioners to assess, adjust, and employ AI technologies with confidence in a safe and ethical way are also necessary [23].

The purpose of this scoping review is to determine the types of AI that are currently used in academic programs and educational curricula in psychology and psychiatry. Furthermore, it attempts to identify the barriers and facilitators of such uses. By evaluating various applications, this review provides a cohesive viewpoint on the subject, enabling to explain the current state of AI integration in psychology education and psychiatry while also highlighting important areas that need more research or development.

Methods

Search strategies

A broad scoping search was systematically performed to retrieve recent literature from multiple electronic databases, including Medline, PubMed, Embase, PsycNet (PsycINFO), EBM Reviews – Cochrane Database of Systematic Reviews, and Google Scholar, covering records from database inception through October 2024. The review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines. The search strategy integrated both free-text keywords and controlled vocabulary (MeSH terms), centering on themes related to artificial intelligence (eg, "artificial intelligence," "AI") and medical education (eg, "education," "medical," "students"), in accordance with the study's aims. Full search strategies are detailed in Multimedia Appendix 1. The search strategies were designed by an experienced librarian in the field of mental health (MD). They were also cross validated by another librarian using the Peer Review of Electronic Search Strategies (PRESS) approach. The methodology was designed by the corresponding author; searches were conducted by AH and independently verified by JP. No filters were applied concerning geographical location or institutional setting. The completed PRISMA-ScR checklist is available in Multimedia Appendix 2.

Study eligibility

Studies were eligible for inclusion if they met the following criteria: (1) the study focused on a topic within the fields of psychiatry or psychology; (2) it involved the use of an AI tool, model, or approach; (3) the article included discussion of facilitators and/or barriers to the use of AI; and (4) the publication was available in either English or French. Articles that did not pertain to psychiatry or psychology, or that referenced AI technologies without a clearly defined implementation or application, were excluded. In addition, studies were excluded if they featured AI tools outside the domain of relevance, such as rule-based expert systems or search algorithms unrelated to data-driven models. Unpublished studies and gray literature were not considered for inclusion.

Data Extraction

A standardized data extraction form was developed to systematically collect and organize relevant information from each included study. Data extraction was performed independently by at least two of the authors, with discrepancies resolved through discussion and consensus, or by consulting a third author when necessary. The process was guided by the research objectives for examining the integration of artificial intelligence in health professions education.

The following elements were extracted from each study:

- Authors: Citation details including first author and year of publication.
- Population: Description of the study participants, including sample size, educational level (eg, undergraduate, postgraduate, continuing professional development), and discipline (eg,

psychiatry, psychology, medical education).

- Use of AI: The specific application or role of artificial intelligence within the educational context, such as adaptive learning platforms, natural language processing tools, intelligent tutoring systems, virtual patient simulations, or predictive analytics.
- Main Outcomes: Primary findings related to educational effectiveness, learner satisfaction, knowledge acquisition, clinical reasoning, engagement, or other measured outcomes. Where applicable, outcomes were categorized by study design (qualitative, quantitative, or mixed methods).
- Facilitators: Factors that supported the successful implementation or perceived value of AI-enhanced educational interventions, such as user-friendliness, institutional support, personalization of learning, or alignment with curricular goals.
- Barriers: Reported challenges or limitations in the adoption of AI tools, including technical constraints, ethical concerns, paucity of digital literacy among users, limited evidence of effectiveness, or resistance to change within educational environments.

Extracted data were tabulated in Microsoft Excel (version 17.0) to allow comparison across studies and to identify patterns, gaps, and emerging themes related to the integration of AI in teaching and learning within the fields of psychiatry and psychology.

Quality assessment

To examine the included studies' methodology, clarity, and transparency, we carried out a systematic evaluation. Considering the variety of research designs seen in the literature on artificial intelligence in psychiatry and addiction education, this phase attempted to improve the findings' interpretability. We used evaluation instruments that were specific to each research type's design to guarantee methodological adequacy.

The Joanna Briggs Institute (JBI) Checklist for Analytical Cross-Sectional Studies was used to assess both quantitative and observational research [24]. The methodological soundness of studies looking at correlations between exposures and outcomes at a specific moment in time can be evaluated with this tool. Items on the checklist evaluate the appropriateness of statistical analyses, the identification and control of confounding factors, the validity and reliability of exposure and outcome measurements, and the clarity of the inclusion criteria.

The JBI Checklist for Qualitative Research for qualitative research was used for qualitative research [24]. This tool assesses how well research methodology and research topics align, how data is collected, how participant voices are represented and interpreted, and how much the researcher has influenced the study. In order to guarantee that qualitative insights are obtained through a thorough and reliable process, it also evaluates ethical issues and the openness of data analysis techniques.

Mixed methods studies were appraised using the Mixed Methods Appraisal Tool (MMAT), 2018 version [25]. The MMAT is a validated tool specifically developed for the assessment of studies that combine qualitative and quantitative approaches. It allows for concurrent evaluation of the components of each methodology within a single study and includes criteria for the integration of qualitative and quantitative data, the appropriateness of the design to the research questions, and the coherence of interpretations drawn from the combined methods.

For non-empirical contributions such as viewpoints, editorials, and conceptual papers, we utilized the AACODS checklist [26]. This framework assesses six key domains: Authority (credibility of the author or source), Accuracy (evidence supporting claims), Coverage (comprehensiveness of content), Objectivity (balance and absence of bias), Date (currency and relevance), and Significance (contribution to the field). It is particularly useful for evaluating grey literature and opinion-based texts where conventional empirical criteria may not apply.

All studies were reviewed independently by two researchers (JP and AH). Each appraisal tool includes a set of key domains that were rated as “Yes,” “Partial,” or “No,” based on the extent to which the methodological criteria were clearly addressed and appropriately implemented in each study.

Results

Description of studies

The scoping review explored the use of AI in teaching and learning within psychiatry and psychology. The initial search across six electronic databases yielded 6219 records. After removing 3132 duplicates, 2895 records were screened by title and abstract. Of these, 2711 were excluded for not meeting the inclusion criteria. A total of 184 full-text articles were sought for retrieval, with two reports not successfully retrieved. The remaining 182 articles were assessed for eligibility in full. Following detailed evaluation, 172 articles were excluded due to being outside the field of interest (n=93), lacking the use of AI (n=56), not addressing facilitators or barriers (n=19), or not being available in English or French (n=4). Ultimately, 10 studies met all inclusion criteria and were included in the final analysis. A flowchart summarizing the selection process is presented in Figure 1, and details of the included studies can be found in Multimedia Appendix 3.

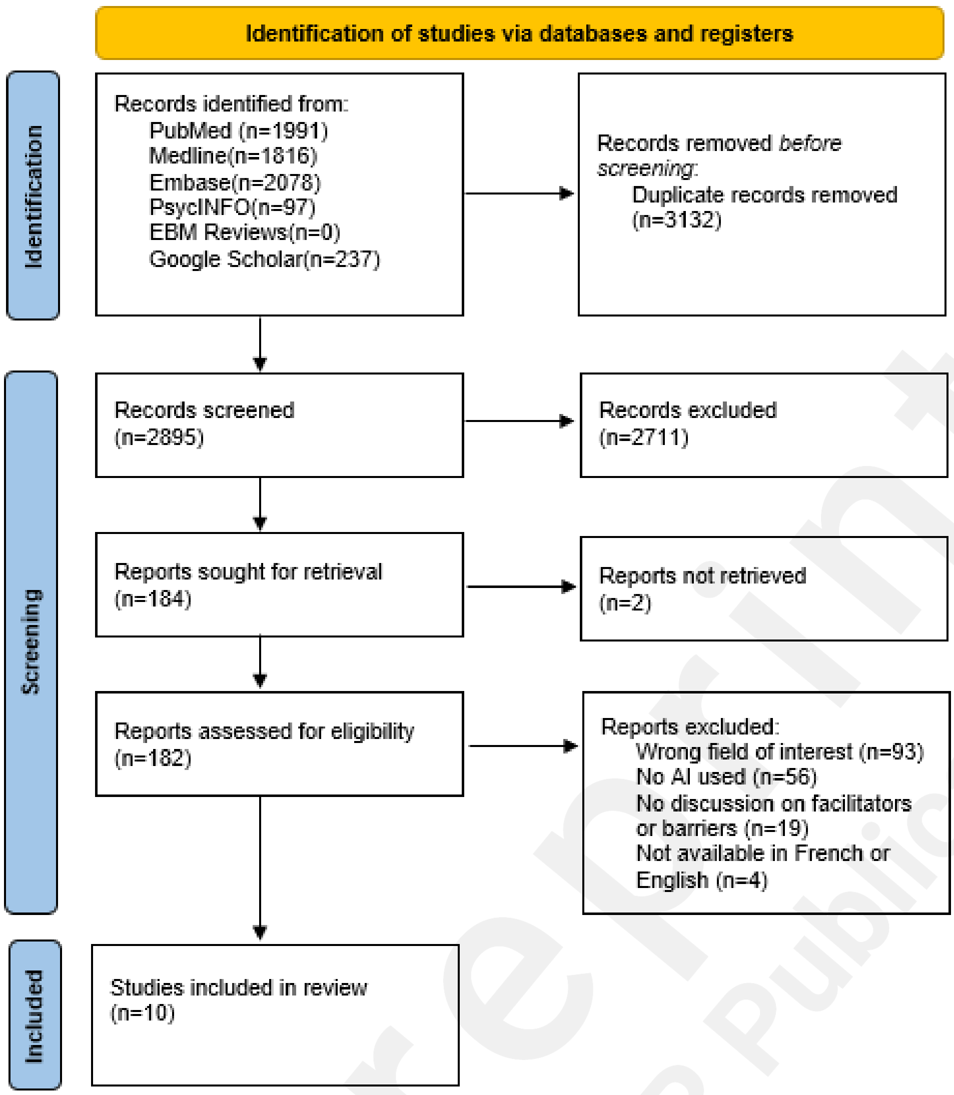

Figure 1. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart for the inclusion of studies.

Main Uses of Artificial Intelligence

Across the ten studies included in this scoping review, AI was applied to a variety of educational functions in psychiatry and addictology. The most frequently observed category was *Clinical Decision Support* (n = 5), where AI tools were used to train learners in diagnosis, prognosis, risk assessment, and early intervention strategies. This was followed by five categories that each appeared in three studies: *Educational Content Creation & Enhancement*, *Therapeutic Tools & Mental Health Monitoring*, *Administrative & Research Assistance*, *Natural Language Processing Applications*, *and Program/Policy Development*. These categories reflect AI's growing role in the development of educational materials, therapeutic simulations, and institutional planning. Less frequently, studies addressed AI's application in *Professional Development and Assessment* (n = 1) and *Student/Applicant Support* (n = 1), highlighting emerging but less explored domains. This distribution suggests a strong current emphasis on clinical reasoning, content automation, and digital service integration in educational contexts.

Clinical Decision Support

AI tools are increasingly integrated into psychiatric and addictology education to train learners in diagnosis, prognosis, and risk assessment. Through exposure to AI-driven systems such as machine learning models and natural language processing tools, trainees can learn how to identify suicide risk, detect patterns in substance use disorders, or evaluate the progression of neurodegenerative conditions [27]. Banerjee et al. emphasized the importance of training programs that illustrate how AI can triage patients or generate diagnostic suggestions, helping doctors understand both the power and limitations of these technologies [28]. Furthermore, students are being introduced to AI's role in treatment personalization, such as adapting therapy plans or medication regimens using predictive modeling [29]. These systems also facilitate early intervention, teaching clinicians how AI can flag high-risk patients in real time, thus embedding preventive care principles into training [30].

Educational Content Creation & Enhancement

Generative AI is transforming the design and delivery of educational content in psychiatry and addictology. One example is the use of ChatGPT to develop script concordance tests (SCTs), which promote clinical reasoning in undergraduate medical education. Hudon et al. demonstrated that AI-generated SCTs were nearly indistinguishable from those written by human experts, highlighting AI's potential to rapidly generate quality training materials aligned with psychiatric diagnostic frameworks [31]. In addition, AI can support exam preparation, providing structured explanations, study plans, and interactive feedback for licensing exams and clinical cases [27]. Spallek et al. noted that while AI tools require human oversight, they offer accessible and customizable resources that align with best practices in mental health communication and literacy, ultimately empowering educators and enhancing learner engagement [30].

Student/Applicant Support

AI can now be used to assist learners with the residency and fellowship application process, offering new educational opportunities in self-presentation and professional writing. Mangold and Ream explored how students and faculty use AI to draft and refine personal statements and letters of recommendation, improving clarity, grammar, and reducing biased language [32]. From a pedagogical perspective, this practice teaches students to reflect critically on AI-generated outputs and engage in iterative editing processes. Moreover, AI is being proposed for application screening, potentially reducing human bias and increasing efficiency in admissions, which prompts institutions to educate both applicants and reviewers on ethical and equitable AI use [32]. These developments signal a shift in how learners engage with professional identity formation and how educators must adapt guidance accordingly.

Therapeutic Tools & Mental Health Monitoring

A body of literature highlights AI's use in therapeutic education, particularly around digital interventions such as CBT- or ACT-based apps and chatbots. Blease et al. and Gratzer and Goldbloom emphasized the need to train future psychiatrists to evaluate and potentially integrate these tools into treatment plans [29, 33]. E-therapy technologies, including AI-powered chatbots like Woebot and Leora, provide psychoeducation on demand and demonstrate how therapy can be delivered asynchronously. Trainees also learn about real-time symptom tracking, which is increasingly used in digital platforms to monitor patient well-being and guide interventions. These digital tools expose students to new care modalities, challenging them to assess efficacy, ethics, and clinical utility in both individual and population-based care models [33].

Administrative & Research Assistance

AI is also reshaping how clinicians and students interact with administrative and scholarly tasks, including documentation, summarization, and literature reviews. Banerjee et al. observed that AI was viewed as helpful in reducing the time spent on clinical documentation, allowing more focus on direct learning and patient care [28]. Additionally, AI tools are being used in academic psychiatry to assist with automated literature searches, summarization, and even initial drafting of manuscripts, offering educational insights into how information is synthesized and presented in research [27]. These uses favorize critical thinking and teach students to evaluate AI-generated content, thereby strengthening their roles as both users and producers of scientific knowledge.

Professional Development and Assessment

In postgraduate and continuing education contexts, AI supports competency-based assessment and professional development. Anzia discussed how longitudinal assessment platforms, potentially enhanced by AI, are replacing traditional high-stakes exams in psychiatry, promoting lifelong learning and more reflective practice [34]. These tools can track learning progress, provide feedback, and recommend tailored educational pathways. Moreover, AI may be integrated into clinical skills evaluations, simulating patient scenarios or providing automated assessments of diagnostic reasoning. This shift calls for educators to incorporate digital literacy and AI fluency into curricula, ensuring that learners are prepared to navigate evolving certification and assessment landscapes [34].

Natural Language Processing (NLP) Applications

NLP tools powered by AI are being introduced in educational settings to illustrate how clinical language can be analyzed, interpreted, and used for real-time support. Banerjee et al. noted NLP's utility in automating clinical documentation, reducing clerical burden and highlighting the importance of clear, structured input [28]. In psychiatry training, NLP is also applied to suicide risk detection, teaching learners how digital footprints and language cues from online interactions can signal crisis [27]. Additionally, NLP technologies are integrated into telehealth platforms, enhancing communication between patients and providers, and offering opportunities for students to learn how AI can support culturally sensitive, evidence-based interactions [30].

Program/Policy Development

Finally, AI's influence on institutional teaching structures is growing, particularly through the design of AI-compatible teaching modules and the creation of policies to guide AI use. Manjunatha et al. illustrated how telepsychiatry programs in India are incorporating AI into remote learning for primary care doctors, serving as a scalable model for underserved settings [35]. These modules reflect a shift toward digital curricula that embed clinical translation and evidence-based AI use. Similarly, Mangold and Ream emphasized the need for training programs to define guidelines for AI use in admissions and evaluation, prompting educators to prepare learners for ethical dilemmas and policy engagement in the evolving digital landscape [32].

Facilitators

A number of facilitators support the integration of artificial intelligence in teaching and learning in psychiatry and addictology. A recurring theme across studies is the availability and accessibility of AI tools, particularly large language models like ChatGPT, which simplify the creation of educational content and customization of learning materials for diverse learner needs [30,31]. These tools were perceived as valuable due to their ability to generate structured and accessible outputs, supporting educators in preparing mental health scenarios or assessments rapidly and effectively. Several studies emphasized that structured prompting or prompt engineering significantly enhances output quality, improving both relevance and accuracy for educational use [32]. In clinical training contexts, AI was seen as a time-saving facilitator, capable of reducing administrative burdens like documentation and allowing learners to focus on clinical reasoning and decision-making [28]. Moreover, technologies such as telepsychiatry and mobile-based learning platforms were supported by the widespread use of smartphones and digital infrastructure, increasing scalability and access to remote or underserved areas [35]. Also, generative AI technologies and related models can facilitate the production of highly realistic synthetic data and the seamless integration of unstructured content across diverse formats [36]. These innovations have the potential to transform core practices such as risk assessment, diagnostic decision-making, and treatment planning, while simultaneously creating new opportunities in educational and training environments. Finally, positive attitudes from students and trainees, particularly their willingness to explore new tools, and their recognition of AI's role in increasing efficiency, accuracy, and engagement, were essential to AI adoption in educational environments [29]. These facilitators reflect a confluence of technological readiness, user engagement, and curricular flexibility.

Barriers

Despite growing enthusiasm, several barriers hinder the seamless integration of AI into psychiatric and addictology education. A dominant concern is the absence of formal training and digital literacy among students and educators, which limits their ability to interpret and critically evaluate AI-generated outputs [28,29]. Many studies noted a limited presence of AI content in medical curricula, resulting in missed opportunities to prepare learners for evolving clinical environments where AI plays a central role [29]. There are also ethical and legal concerns, particularly around data privacy, algorithmic bias, and informed consent, which raise questions about the responsible use of AI tools like chatbots or diagnostic aids [30,33]. The scarcity of high-quality data and the opacity of AI algorithms, often referred to as the "black box" problem, were also cited as major obstacles to trust and widespread adoption [27]. In addition, several articles highlighted that AI outputs can lack nuance, empathy, or personalization, making them less suitable for teaching relational and humanistic aspects of psychiatric care [32]. Finally, concerns persist about the accuracy and reliability of AI-generated educational materials, particularly when outputs are not subject to expert review, posing risks of misinformation or oversimplification [30,31]. These barriers highlight the need for comprehensive strategies that include AI literacy, ethical guidance, and faculty support to ensure safe and effective integration into educational practice.

Quality assessment of the identified studies

Overall, the methodological quality of the included literature was moderate to high. Mixed methods and empirical studies demonstrated clear objectives, coherent data collection and analysis strategies, and ethical transparency. However, several studies lacked detailed descriptions of sampling procedures or integration of data types. Non-empirical articles were generally strong in authority and relevance but limited by the absence of primary data or systematic methodology. Despite variability in design and depth, most studies provided valuable insights into the educational applications of AI in psychiatry and addictology. The full quality appraisal is presented in Multimedia Appendix 3.

Discussion

Principal Results

This scoping review aimed to identify the different ways AI is currently used in the teaching and learning of psychiatry and psychology. A total of 10 studies were fully analyzed, and eight categories of AI applications were identified: clinical decision support, educational content creation and enhancement, therapeutic tools and mental health monitoring, administrative and research assistance, natural language processing applications, program and policy development, student/applicant support, and professional development and assessment. These categories reflect the diverse roles AI plays in shaping educational strategies, curricular design, and learner engagement in mental health training. The studies included were overall of moderate to high quality.

Comparison with Prior Work

The findings of this scoping review confirm and expand on other studies that demonstrate the growing integration of artificial intelligence into psychological and psychiatric education, especially through clinical decision support technologies. Previous research has shown, for example, that machine learning models can help forecast the risk of depression, schizophrenia, and suicide. Our study also notes that similar predictive technologies are already being used in educational contexts [37,38]. This is consistent with the findings of Rajkomar et al., who observed that clinical AI tool exposure aids in the development of important data literacy in healthcare trainees [39]. However, our work highlights AI's instructional value, that is, its function in helping students develop critical reasoning and early diagnostic acumen, in contrast to much of the preceding material, which has focused on clinical outcomes.

Literature on AI also supports the increasing use of generative AI in the production of instructional materials. Recent research has switched to look at how tools like ChatGPT, GPT-4, and Claude might scaffold learning in medical education, whereas the majority of earlier applications were on patient-facing educational interventions (such as mental health apps) [40]. These research support our findings by demonstrating that AI is capable of creating excellent test questions, simulating clinical situations, and even co-creating course curricula. Critical gaps still exist, though, especially regarding the possibility that students will passively accept AI outputs without engaging enough. Meskó shares this concern and calls for clear instruction in AI prompt engineering, appropriate medical professional tutorials, and verification skills [41]. The findings in this scoping review highlight that such competencies are increasingly essential in psychiatry and psychology, where nuance and context matter deeply.

According to certain studies, an important area of AI integration in training is mental health apps and therapeutic chatbots, which is consistent with previous research [42, 43]. According to these studies, chatbot-based psychotherapy and psychoeducational tools are beneficial teaching tools in addition to being successful for patients. When included into clinical simulations, they give students the opportunity to analyze intervention results, gauge therapeutic tone, and practice making moral decisions. Our results highlight the need for directed education to guarantee that students acquire abilities in digital empathy, data protection, and cultural adaptation, even when these tools show promise. Training programs need to change in a way that assists clinicians in interpreting AI-driven outputs while upholding person-centered treatment and therapeutic alliances, as D'Alfonso et al. contend [44].

Lastly, the findings confirm that faculty development, institutional preparedness, and ethical advice are drivers of AI adoption, which is in line with research on digital transformation in health professions education [45]. Although students frequently use AI tools for convenience, educators are nevertheless worried about the loss of critical thinking, professional identity, and interpersonal skills. These difficulties point to the necessity of organized curriculum, like those put forth by Tolentino et al., that incorporate AI literacy into psychology and psychiatry undergraduate and graduate education programs.

Limitations

This scoping review has a few limitations. First, although a comprehensive search strategy was employed across multiple databases, it is possible that relevant studies were missing, particularly those published in non-indexed journals or categorized under broader terms not captured by the search keywords. Second, the review was limited to studies published in English or French, potentially excluding valuable insights from non-English/French literature. Third, due to the heterogeneity of study designs and the inclusion of both empirical and conceptual papers, no formal meta-analysis was conducted, and the synthesis remains primarily narrative. In addition, while efforts were made to assess study quality using validated tools, some included articles, particularly perspectives and editorials, lacked sufficient methodological detail, which may limit the generalizability of their conclusions. Finally, because the field of AI in mental health education is rapidly evolving, newer studies and technologies may have emerged since the time of data collection, warranting future updates to this review.

Conclusions

To conclude, this scoping review provided an overview of how artificial intelligence is being integrated into the teaching and learning of psychiatry and psychology. By analyzing ten studies, eight distinct categories of AI use were identified, ranging from clinical decision support and educational content generation to digital therapeutic tools and policy development. These findings highlight the emerging role of AI not only as a clinical adjunct but also as a transformative educational tool that can support adaptive learning, promote efficiency, and broaden access to mental health training. While the overall quality of the studies included was moderate to high, important challenges remain particularly related to ethical considerations, digital literacy, and institutional readiness. As AI technologies continue to evolve, future research and curriculum development efforts should focus on promoting safe, equitable, and pedagogically sound integration of AI in mental health education. This review underscores the need for ongoing interdisciplinary collaboration between educators, clinicians, technologists, and policymakers to ensure that future practitioners are well-equipped to engage with AI in meaningful and responsible ways.

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Authors' Contributions

AH and JP were involved in conceptualization. Data curation was done by all the authors. Formal analysis was done by AH and JP. AH was involved in funding acquisition. Investigation was done by AH. AH and MD contributed to methodology. Project administration was done by AH. AH contributed to resources. Supervision was done by AH. Validation was done by AH and JP. All the authors were involved in writing, original draft, as well as review and editing.

Conflicts of Interest

None declared.

Abbreviations

AI: Artificial Intelligence;
ACT: Acceptance and Commitment Therapy;
AACODS: Authority, Accuracy, Coverage, Objectivity, Date, and Significance;
CBT: Cognitive Behavioral Therapy;
CDSS: Clinical Decision Support System;
EBM: Evidence-Based Medicine;
GAN: Generative Adversarial Network;
GPT: Generative Pretrained Transformer;
ICMJE: International Committee of Medical Journal Editors;
JMIR: Journal of Medical Internet Research;
LLM: Large Language Model;
MMAT: Mixed Methods Appraisal Tool;
ML: Machine Learning;
NLP: Natural Language Processing;
PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses;
PRISMA-ScR: PRISMA extension for Scoping Reviews;
PRESS: Peer Review of Electronic Search Strategies;
RCT: Randomized Controlled Trial;
SCT: Script Concordance Test;
USMLE: United States Medical Licensing Examination;

Multimedia Appendix 1

Table S1. Electronic search strategy for the scoping review conducted.

Multimedia Appendix 2

Table S2: PRISMA-Sr checklist.

Multimedia Appendix 3

Table S3. Scoping review study selection detailed results.
Table S4. Summary of the quality assessment

References

1. Abernethy A, Adams L, Barrett M, Bechtel C, Brennan P, Butte A, Faulkner J, Fontaine E, Friedhoff S, Halamka J, Howell M, Johnson K, Long P, McGraw D, Miller R, Lee P, Perlin J, Rucker D, Sandy L, Savage L, Stump L, Tang P, Topol E, Tuckson R, Valdes K. The Promise of Digital Health: Then, Now, and the Future. NAM Perspect.

2022;10.31478/202206e. PMID: 36177208. doi: 10.31478/202206e
2. Topol, EJ. High-performance medicine: the convergence of human and artificial intelligence. Nat Med 2019;25:44-56. doi: https://doi.org/10.1038/s41591-018-0300-7
3. Lee EE, Torous J, De Choudhury M, et al. Artificial Intelligence for Mental Health Care: Clinical Applications, Barriers, Facilitators, and Artificial Wisdom. Biol Psychiatry Cogn Neurosci Neuroimaging. 2021;6(9):856-864. doi:10.1016/j.bpsc.2021.02.001
4. Thakkar A, Gupta A, De Sousa A. Artificial intelligence in positive mental health: a narrative review. Front Digit Health. 2024;6:1280235. Published 2024 Mar 18. doi:10.3389/fdgth.2024.1280235
5. Hudon A, Beaudoin M, Phraxayavong K, Potvin S, Dumais A. Exploring the Intersection of Schizophrenia, Machine Learning, and Genomics: Scoping Review. JMIR Bioinform Biotechnol. 2024;5:e62752. PMID: 39546776. doi: 10.2196/62752
6. Chekroud AM, Zotti RJ, Shehzad Z, Gueorguieva R, Johnson MK, Trivedi MH, Cannon TD, Krystal JH, Corlett PR. Cross-trial prediction of treatment outcome in depression: a machine learning approach. Lancet Psychiatry. 2016;3(3):243-50. PMID: 26803397. doi: 10.1016/S2215-0366(15)00471-X.
7. Schnyer DM, Clasen PC, Gonzalez C, Beevers CG. Evaluating the diagnostic utility of applying a machine learning algorithm to diffusion tensor MRI measures in individuals with major depressive disorder. Psychiatry Res Neuroimaging. 2017;264:1-9. PMID: 28388468. doi: 10.1016/j.pscychresns.2017.03.003
8. Reece, AG, Danforth, CM. Instagram photos reveal predictive markers of depression. EPJ Data Sci. 2017;6(15). doi: https://doi.org/10.1140/epjds/s13688-017-0110-z
9. Wager TD, Woo CW. Imaging biomarkers and biotypes for depression. Nat Med. 2017;23(1):16-17. PMID: 28060802 doi: 10.1038/nm.4264
10. Walsh, CG, Ribeiro, JD, Franklin, JC. Predicting Risk of Suicide Attempts Over Time Through Machine Learning. Clinical Psychological Science, 2017;5(3):457-469. doi: https://doi.org/10.1177/2167702617691560
11. Franklin JC, Ribeiro JD, Fox KR, Bentley KH, Kleiman EM, Huang X, Musacchio KM, Jaroszewski AC, Chang BP, Nock MK. Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research. Psychol Bull. 2017;143(2):187-232. PMID: 27841450. doi: 10.1037/bul0000084
12. MA, Pan L, Cherkassky VL, McMakin DL, Cha C, Nock MK, Brent D. Machine learning of neural representations of suicide and emotion concepts identifies suicidal youth. Nat Hum Behav. 2017;1:911-919. doi: 10.1038/s41562-017-0234-y
13. Chung Y, Addington J, Bearden CE, Cadenhead K, Cornblatt B, Mathalon DH, McGlashan T, Perkins D, Seidman LJ, Tsuang M, Walker E, Woods SW, McEwen S, van Erp TGM, Cannon TD; North American Prodrome Longitudinal Study (NAPLS) Consortium and the Pediatric Imaging, Neurocognition, and Genetics (PING) Study Consortium. Use of Machine Learning to Determine Deviance in Neuroanatomical Maturity Associated With Future Psychosis in Youths at Clinically High Risk. JAMA Psychiatry. 2018;75(9):960-968. PMID: 29971330. doi: 10.1001/jamapsychiatry.2018.1543
14. Gan DZQ, McGillivray L, Han J, Christensen H, Torok M. Effect of Engagement With Digital Interventions on Mental Health Outcomes: A Systematic Review and Meta-Analysis. Front Digit Health. 2021;3:764079. PMID: 34806079. doi: 10.3389/fdgth.2021.764079
15. Fiske A, Henningsen P, Buyx A. Your Robot Therapist Will See You Now: Ethical Implications of Embodied Artificial Intelligence in Psychiatry, Psychology, and Psychotherapy. J Med Internet Res 2019;21(5):e13216. doi: 10.2196/13216
16. Chin H, Song H, Baek G, et al. The Potential of Chatbots for Emotional Support and Promoting Mental Well-Being in Different Cultures: Mixed Methods Study. J Med Internet Res. 2023;25:e51712. Published 2023 Oct 20. doi:10.2196/51712

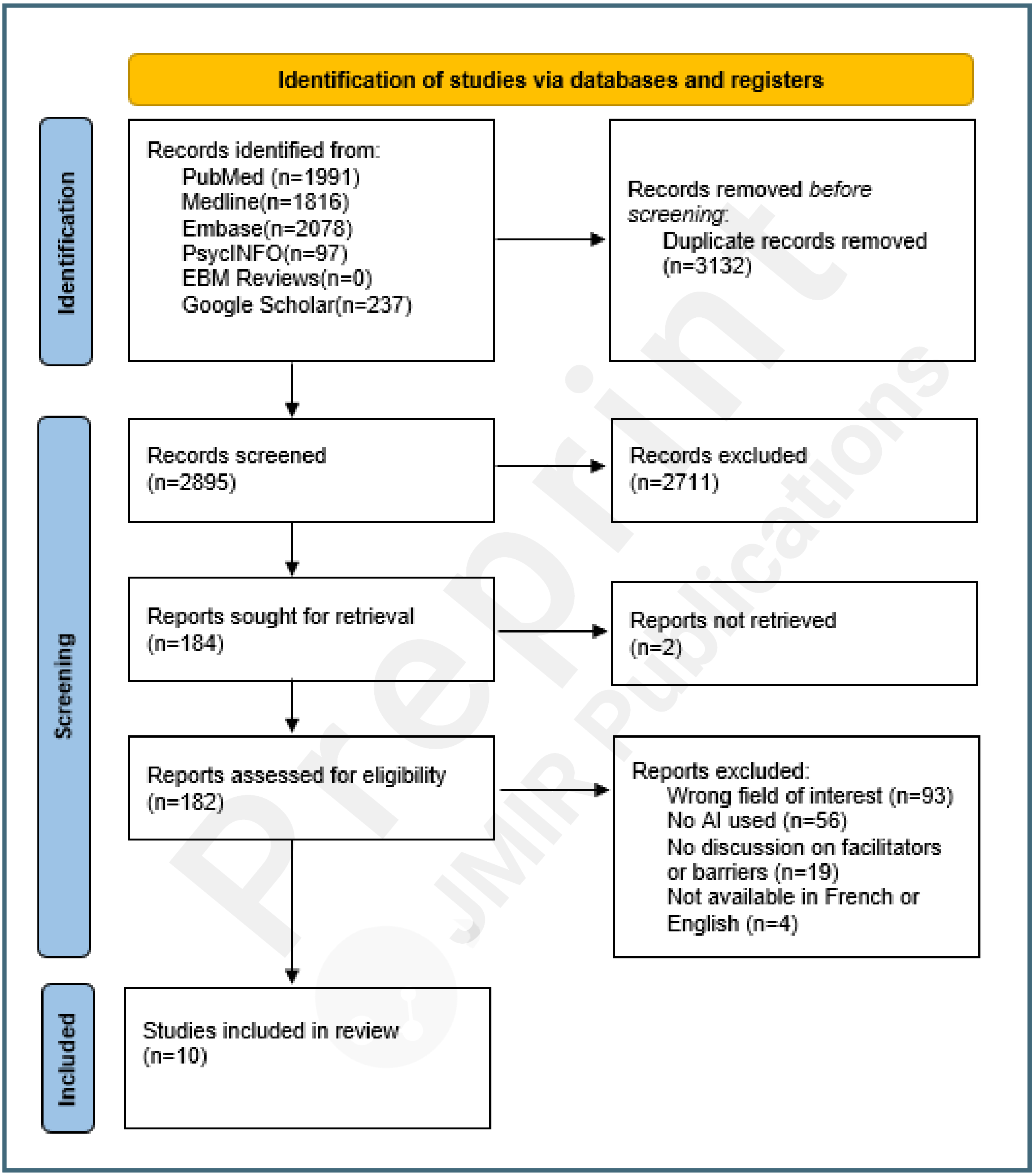
17. Mennella C, Maniscalco U, De Pietro G, Esposito M. Ethical and regulatory challenges of AI technologies in healthcare: A narrative review. Heliyon. 2024;10(4):e26297. Published 2024 Feb 15. doi:10.1016/j.heliyon.2024.e26297
18. Malouin-Lachance A, Capolupo J, Laplante C, Hudon A. Does the Digital Therapeutic Alliance Exist? Integrative Review. JMIR Ment Health. 2025;12:e69294. Published 2025 Feb 7. doi:10.2196/69294
19. Oudin A, Maatoug R, Bourla A, et al. Digital Phenotyping: Data-Driven Psychiatry to Redefine Mental Health. J Med Internet Res. 2023;25:e44502. Published 2023 Oct 4. doi:10.2196/44502
20. Gutierrez G, Stephenson C, Eadie J, Asadpour K, Alavi N. Examining the role of AI technology in online mental healthcare: opportunities, challenges, and implications, a mixed-methods review. Front Psychiatry. 2024;15:1356773. Published 2024 May 7. doi:10.3389/fpsyt.2024.1356773
21. Yeo G, Reich SM, Liaw NA, Chia EYM. The Effect of Digital Mental Health Literacy Interventions on Mental Health: Systematic Review and Meta-Analysis. J Med Internet Res. 2024;26:e51268. Published 2024 Feb 29. doi:10.2196/51268
22. Orsolini L, Jatchavala C, Noor IM, et al. Training and education in digital psychiatry: A perspective from Asia-Pacific region. Asia Pac Psychiatry. 2021;13(4):e12501. doi:10.1111/appy.12501
23. Bekbolatova M, Mayer J, Ong CW, Toma M. Transformative Potential of AI in Healthcare: Definitions, Applications, and Navigating the Ethical Landscape and Public Perspectives. Healthcare (Basel). 2024;12(2):125. Published 2024 Jan 5. doi:10.3390/healthcare12020125
24. Joanna Briggs Institute. Checklist for Systematic Reviews and Research Syntheses. Published 2017. Accessed February 12, 2025. https://jbi.global/critical-appraisal-tools
25. Hong, Q. N., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M.-P., Griffiths, F., Nicolau, B., O'Cathain, A., Rousseau, M.-C., Vedel, I., & Pluye, P. (2018). The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers. Education for Information, 34(4), 285-291. https://doi.org/10.3233/EFI-180221
26. Tyndall J. AACODS checklist. Adelaide: Flinders University, Accessed February 12, 2025. Published 2010 https://dspace.flinders.edu.au/jspui/bitstream/2328/3326/4/AACODS_Checklist.pdf
27. López-Ojeda W, Hurley RA. Medical Metaverse, Part 2: Artificial Intelligence Algorithms and Large Language Models in Psychiatry and Clinical Neurosciences. J Neuropsychiatry Clin Neurosci. 2023;35(4):316-320. doi:10.1176/appi.neuropsych.20230117
28. Banerjee M, Chiew D, Patel KT, et al. The impact of artificial intelligence on clinical education: perceptions of postgraduate trainee doctors in London (UK) and recommendations for trainers. BMC Med Educ. 2021;21(1):429. Published 2021 Aug 14. doi:10.1186/s12909-021-02870-x
29. Blease C, Kharko A, Annoni M, Gaab J, Locher C. Machine Learning in Clinical Psychology and Psychotherapy Education: A Mixed Methods Pilot Survey of Postgraduate Students at a Swiss University. Front Public Health. 2021;9:623088. Published 2021 Apr 9. doi:10.3389/fpubh.2021.623088
30. Spallek S, Birrell L, Kershaw S, Devine EK, Thornton L. Can we use ChatGPT for Mental Health and Substance Use Education? Examining Its Quality and Potential Harms. JMIR Med Educ. 2023;9:e51243. Published 2023 Nov 30. doi:10.2196/51243
31. Hudon A, Kiepura B, Pelletier M, Phan V. Using ChatGPT in Psychiatry to Design Script Concordance Tests in Undergraduate Medical Education: Mixed Methods Study. JMIR Med Educ. 2024;10:e54067. Published 2024 Apr 4. doi:10.2196/54067
32. Mangold S, Ream M. Artificial Intelligence in Graduate Medical Education Applications. J Grad Med Educ. 2024;16(2):115-118. doi:10.4300/JGME-D-23-00510.1

33. Gratzer D, Goldbloom D. Therapy and E-therapy-Preparing Future Psychiatrists in the Era of Apps and Chatbots. Acad Psychiatry. 2020;44(2):231-234. doi:10.1007/s40596-019-01170-3
34. Anzia JM. Lifelong Learning in Psychiatry and the Role of Certification. Psychiatr Clin North Am. 2021;44(2):309-316. doi:10.1016/j.psc.2021.03.001
35. Manjunatha N, Kumar CN, Math SB, Thirthalli J. Designing and implementing an innovative digitally driven primary care psychiatry program in India. Indian J Psychiatry. 2018;60(2):236-244. doi:10.4103/psychiatry.IndianJPsychiatry_214_18
36. Tortora L. Beyond Discrimination: Generative AI Applications and Ethical Challenges in Forensic Psychiatry. Front Psychiatry. 2024;15:1346059. Published 2024 Mar 8. doi:10.3389/fpsyt.2024.1346059
37. Shatte ABR, Hutchinson DM, Teague SJ. Machine learning in mental health: a scoping review of methods and applications. Psychol Med. 2019;49(9):1426-1448. doi:10.1017/S0033291719000151
38. Dwyer DB, Falkai P, Koutsouleris N. Machine Learning Approaches for Clinical Psychology and Psychiatry. Annu Rev Clin Psychol. 2018;14:91-118. doi:10.1146/annurev-clinpsy-032816-045037
39. Rajkomar A, Dean J, Kohane I. Machine Learning in Medicine. N Engl J Med. 2019;380(14):1347-1358. doi:10.1056/NEJMra1814259
40. Kung TH, Cheatham M, Medenilla A, et al. Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models. PLOS Digit Health. 2023;2(2):e0000198. Published 2023 Feb 9. doi:10.1371/journal.pdig.0000198
41. Meskó B. Prompt Engineering as an Important Emerging Skill for Medical Professionals: Tutorial. J Med Internet Res. 2023;25:e50638. Published 2023 Oct 4. doi:10.2196/50638
42. Miner AS, Milstein A, Hancock JT. Talking to Machines About Personal Mental Health Problems. JAMA. 2017;318(13):1217-1218. doi:10.1001/jama.2017.14151
43. Vaidyam AN, Wisniewski H, Halamka JD, Kashavan MS, Torous JB. Chatbots and Conversational Agents in Mental Health: A Review of the Psychiatric Landscape. Can J Psychiatry. 2019;64(7):456-464. doi:10.1177/0706743719828977
44. D'Alfonso S, Lederman R, Bucci S, Berry K. The Digital Therapeutic Alliance and Human-Computer Interaction. JMIR Ment Health. 2020;7(12):e21895. Published 2020 Dec 29. doi:10.2196/21895
45. Cureton D, Jones J, Hughes J. The Postdigital University: Do We Still Need Just a Little of That Human Touch?. Postdigital Science and Education. 2021;3(1):223-241. doi:10.1007/s42438-020-00204-6
46. Tolentino R, Baradaran A, Gore G, Pluye P, Abbasgholizadeh-Rahimi S. Curriculum Frameworks and Educational Programs in AI for Medical Students, Residents, and Practicing Physicians: Scoping Review. JMIR Med Educ. 2024;10:e54793. Published 2024 Jul 18. doi:10.2196/54793

Supplementary Files

Figures

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart for the inclusion of studies.



Multimedia Appendixes

Table S1. Electronic search strategy for the scoping review conducted.
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Table S2: PRISMA-Sr checklist.
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Scoping review study selection detailed results and quality assessment.
URL: http://asset.jmir.pub/assets/f915f4e1d1eb46a2a1bb3e383ab5e3cb.docx

TOC/Feature image for homepages

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