Permanent Education Mediated by Digital Technologies in Mental Health Care in Primary Health Care

Educação Permanente Mediada por Tecnologias Digitais no Cuidado em Saúde Mental na Atenção Primária

Educación Permanente Mediada por Tecnologías Digitales en el Cuidado de la Salud Mental em la Atención Primaria de Salud

RESUMO

Objetivo: Analisar as evidências científicas sobre a educação permanente mediada por tecnologias digitais no cuidado em saúde mental na Atenção Primária à Saúde. **Método:** Revisão integrativa realizada nas bases MEDLINE, Scopus, Web of Science, CINAHL, LILACS, IBECS e BDENF, entre fevereiro e março de 2026. **Resultados:** Sete estudos compuseram a amostra, com predomínio de ensaios clínicos randomizados e estudos de implementação. As estratégias digitais, como e-learning, plataformas online e modelos híbridos, demonstraram impacto positivo na qualificação profissional, promovendo aquisição de conhecimento, desenvolvimento de competências clínicas, maior confiança na tomada de decisão e melhoria da adesão às práticas em saúde mental. Também favoreceram o acesso à capacitação, especialmente em contextos com limitações estruturais, embora persistam desafios relacionados à infraestrutura, capacitação digital e integração ao processo de trabalho. **Conclusão:** As tecnologias digitais configuram-se como estratégia promissora para a educação permanente e qualificação do cuidado em saúde mental na APS, sendo sua efetividade dependente da integração com abordagens pedagógicas e do suporte institucional.

DESCRITORES: Educação Permanente em Saúde; Saúde Mental; Atenção Primária à Saúde; Tecnologia Digital; Capacitação Profissional.

ABSTRACT

Objective: To analyze the scientific evidence on digital technology-mediated continuing education in mental health care within Primary Health Care. **Method:** An integrative review was conducted in the MEDLINE, Scopus, Web of Science, CINAHL, LILACS, IBECS, and BDENF databases between February and March 2026. **Results:** Seven studies comprised the sample, with a predominance of randomized clinical trials and implementation studies. Digital strategies, such as e-learning, online platforms, and hybrid models, demonstrated a positive impact on professional development, promoting knowledge acquisition, the development of clinical skills, greater confidence in decision-making, and improved adherence to mental health practices. They also facilitated access to training, especially in contexts with structural limitations, although challenges related to infrastructure, digital training, and integration into the work process persist. **Conclusion:** Digital technologies represent a promising strategy for continuing education and professional development in mental health care within PHC, with their effectiveness dependent on integration with pedagogical approaches and institutional support.

DESCRIPTORS: Continuing Health Education; Mental Health; Primary Health Care; Digital Technology; Professional Training.

RESUMEN

Objetivo: realizar un mapeo de la producción científica nacional sobre las visitas de las mujeres embarazadas a la maternidad durante el periodo prenatal. **Método:** revisión exploratoria basada en el marco de referencia del Joanna Briggs Institute y en las directrices «Preferred Reporting Items for Systematic reviews and Meta-Analyses: extension for Scoping Reviews». Se incluyeron estudios en portugués publicados entre 2014 y 2024, excluyendo las investigaciones realizadas fuera de Brasil. Se analizaron 17 publicaciones. **Resultados:** la visita guiada contribuye a la humanización de la atención y fortalece los vínculos, con el personal de enfermería como figura central. Entre los retos se encuentran la escasez de profesionales cualificados, las deficiencias en la coordinación entre los niveles de atención y la falta de estandarización conceptual. **Conclusión:** la visita a la maternidad es una práctica relevante para la seguridad y la humanización de la asistencia, y esta revisión contribuye a identificar lagunas en la literatura y a orientar las políticas y prácticas relacionadas con la atención obstétrica en Brasil.

DESCRIPTORES: Embarazadas; Embarazo; Embarazo de alto riesgo; Tercer trimestre del embarazo; Atención prenatal.

Ítalo Arão Pereira Ribeiro
PhD in Nursing. Professor of Nursing at the Federal University of Mato Grosso do Sul, Coxim – MS, Brazil.
ORCID: https://orcid.org/0000-0003-0778-1447

Daniel de Macedo Rocha
PhD in Nursing. Nursing Professor at the Federal University of Mato Grosso do Sul, Coxim – MS, Brazil.
ORCID: https://orcid.org/0000-0003-1709-2143

Iara Barbosa Ramos
Ph.D. in Health and Development. Assistant Professor of Nursing at the Federal University of Mato Grosso do Sul, Coxim – MS, Brazil.
ORCID: https://orcid.org/0000-0003-1608-4336

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Muriel Fernanda de Lima
Ph.D. in Nursing. Nursing Professor at the Federal University of Mato Grosso do Sul, Coxim – MS, Brazil.
ORCID: https://orcid.org/0000-0001-9812-659X

Helder de Paduá Lima
PhD in Nursing. Nursing Professor at the Federal University of Mato Grosso do Sul, Coxim – MS, Brazil.
ORCID: https://orcid.org/0000-0002-3795-6343

Wenysson Noleto dos Santos
Master's Degree in Nursing. Nursing Professor at UNIPLAN University Center, Balsas – MA, Brazil.
ORCID: https://orcid.org/0000-0002-2093-5415

Rafael Saraiva Alves
Undergraduate student in Nursing. Federal University of Mato Grosso do Sul, Coxim-MS, Brazil.
ORCID: https://orcid.org/0009-0003-1960-1658

Adriana Simon Coitinho
Ph.D. in Biological Sciences (Biochemistry). Professor of Immunology at the Federal University of Rio Grande do Sul, Porto Alegre – RS, Brazil.
ORCID: https://orcid.org/0000-0003-3599-8627

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INTRODUCTION

Primary Health Care (PHC) occupies a central position in the organization of health systems and the coordination of care, serving as a strategic space for the development of mental health initiatives. In recent years, there has been a significant increase in demands related to psychological distress at this level of care, driven by social and economic transformations and the impacts of the COVID-19 pandemic. This scenario highlights the complexity of mental health care in PHC, marked by multifactorial conditions and social vulnerabilities, which requires qualified professionals capable of providing comprehensive and effective care [1] .

In this context, Continuing Health Education (CHE) stands out as a fundamental strategy for improving healthcare practices, as it promotes educational processes based on addressing everyday challenges and collectively developing solutions. In Primary Health Care (PHC), CHE contributes to the development of professional competencies and to the reorganization of work processes in response to the complex demands of mental health [2] . At the same time, advances in Digital Information and Communication Technologies (DICT) have expanded training opportunities, facilitating access to knowledge and fostering new teaching-learning dynamics in the health field [3] .

In the context of mental health, evidence indicates that digital technologies can support care practices, enhance clinical decision-making, and facilitate communication among teams, in addition to contributing to the organization of work in PHC [1] The international literature also highlights the expansion of digital mental health, including the use of apps, interactive platforms, and artificial intelligence, as complementary care strategies, especially in contexts with structural limitations, emphasizing the relevance of hybrid approaches that integrate human and technological support [4] .

Despite these potentials, the implementation of EPS and the use of digital technologies in the PHC context still present significant challenges. In Brazil, EPS, although established as a policy of the Unified Health System (SUS), faces limitations such as discontinuity of actions, institutional resistance, and fragility in its incorporation into the daily routine of services [5] . Similarly, the adoption of digital technologies occurs in an unequal man , being impacted by limitations in infrastructure, professional training, and access, which compromises their effectiveness [1-3] .

Additionally, although there is an expansion of digital health initiatives in the SUS linked to professional training [6] , the literature highlights a significant gap: the use of digital technologies has been more extensively explored in direct patient care than as a structured strategy for continuing education for mental health professionals in PHC, remaining still in its infancy and poorly systematized [7-9] .

Thus, the main question that arises is how digital technologies have been used as mediators of continuing education to improve mental health care in PHC, considering their potential and limitations. We start from the hypothesis that, although promising, these strategies are not yet fully integrated into the training processes in the daily routine of services. Thus, this study aimed to analyze the scientific literature on continuing education mediated by digital technologies in mental health care within the context of Primary Health Care.

METHOD

This is an integrative literature review, a method that allows for a broad synthesis of scientific knowledge, enabling the inclusion of studies with different methodological designs and contributing to a deeper understanding of a specific phenomenon. This study was conducted in six stages: (1) identification of the topic and formulation of the research question; (2) establishment of inclusion and exclusion criteria; (3) definition of the information to be extracted from the selected studies; (4) evaluation of the included studies; (5) interpretation of the results; and (6) presentation of the synthesis of knowledge, as proposed by [10] .

The research question was for-

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mulated based on the PICo strategy (Population, Interest, and Context)[11]. Considering the scope of this integrative review, the following were defined: P (Population/Phenomenon): continuing health education; I (Interest): use of digital technologies in educational processes; and Co (Context): mental health care in Primary Health Care. Based on this scope, the following guiding question was formulated: What scientific evidence is available regarding digital technology-mediated continuing education in mental health care in Primary Health Care?

The literature review was conducted between February and March 2026, through consultation of the following electronic databases: *Medical Literature Analysis and Retrieval System online* (MEDLINE via PubMed®), *Excerpta Medica Database* (Embase), Scopus, *Web of Science™* , *Cumulative Index to Nursing and Allied Health Literature* (CINAHL), Latin American and Caribbean Health Sciences Literature (LILACS), Spanish Bibliographic Index in Health Sciences (IBECS), and Nursing Database (BDENF) via the Virtual Health Library (VHL).

To conduct the searches, controlled and uncontrolled descriptors (keywords) were used, extracted from the Health Sciences Descriptors (DeCS), *Medical Subject Headings* (MeSH), Entry Terms, and *List of Headings* from *the* CINAHL *Information Systems*. The combination of terms across the databases was performed using the Boolean operators OR and AND. Table 1 presents the search descriptors, as well as the query generated in MEDLINE, which was adapted to the specificities of the other databases consulted.

Quadro 1 – Termos utilizados para operacionalização da estratégia de busca, fevereiro de 2026.

DeCS / MeSH / CINAHL Headings	Boolean operator	Database
Continuing Health Education / Education, Continuing / Continuing Education	OR	LILACS, BDENF, MEDLINE (PubMed), CINAHL
Health Technology / Digital Health / Educational Technology	OR	MEDLINE (PubMed), Scopus, Web of Science, CINAHL
Health Informatics / Health Information Technology / Nursing Informatics	OR	MEDLINE (PubMed), Scopus, CINAHL
Mental Health / Mental Health / Mental Health Services	AND	LILACS, BDENF, MEDLINE (PubMed), Scopus, CINAHL
Primary Health Care / Primary Health Care / Primary Health Care	AND	LILACS, BDENF, MEDLINE (PubMed), Scopus, Web of Science, CINAHL
MEDLINE SEARCH TERM via PubMed		
("Education, Continuing"[Mesh] OR "Inservice Training"[Mesh] OR "Education, Distance"[Mesh] OR "Continuing Education" OR "Permanent Health Education" OR "In-service training" OR "e-learning" OR "online training" OR "digital training")AND("Mental Health"[Mesh] OR "Mental Disorders"[Mesh] OR "mental health" OR "depression" OR "anxiety")AND("Primary Health Care"[Mesh] OR "primary care" OR "primary health care" OR "family practice")AND("Telemedicine"[Mesh] OR "Internet-Based Intervention"[Mesh] OR "Digital Technology" OR "eHealth" OR "mHealth" OR "telehealth")		

The defined inclusion criteria were original scientific articles published between 2020 and 2025, available in full, in Portuguese, English, or Spanish, and addressing the use of digital technologies as strategies for continuing education or professional training in mental health within primary health care. Editorials, final course projects, monographs, dissertations, theses, review articles, retracted articles, and articles that did not address the research question were excluded.

The selection of references was conducted by two independent reviewers who, after reading titles, abstracts, and determining inclusion, achieved an agreement rate of over 80%. Disagreements were resolved by a third reviewer, who issued an opinion regarding the possibility of inclusion.

For reference management, we used the features provided by *EndNote Web software*, available on the *Web of Science* platform, which is characterized as a tool conducive to organizing, identifying, and excluding duplicate records, as well as sharing data.

The database search identified 312 studies. After removing 82 duplicates, 230 publications remained for screening based on titles and abstracts. Of these, 178 were excluded for failing to meet the inclusion criteria, leaving 52 studies to be read in full. After detailed analysis, 45 articles were excluded because they did not simultaneously address the themes of continuing education, digital technologies, mental health, and primary health care. Thus, the final sample of the review consisted of 7 studies, in accordance with the selection flowchart presented in the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) model [12], as shown in Figure 1.

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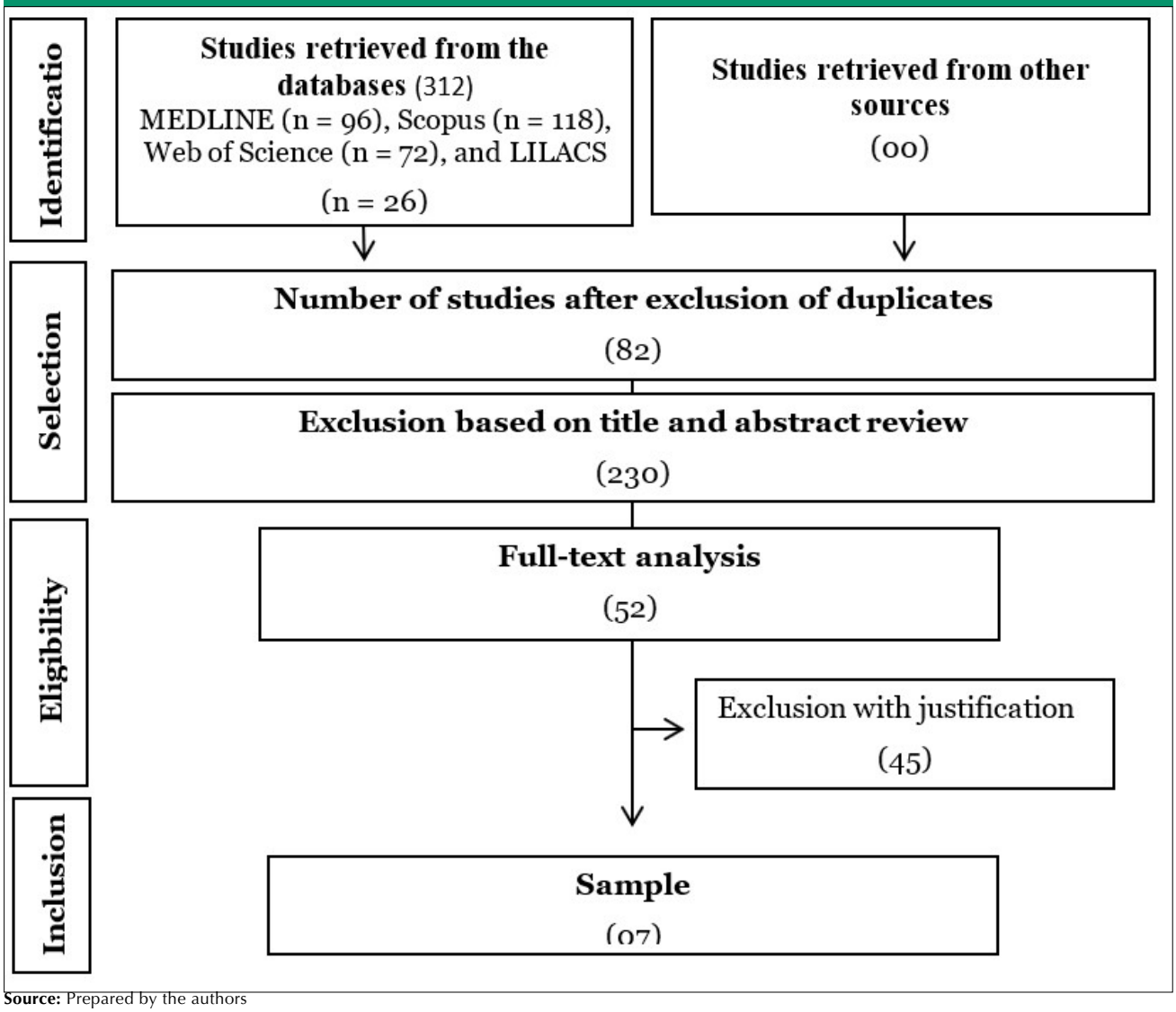
Figure 1 – Selection flowchart for primary studies in the databases searched, February 2026.



Source: Prepared by the authors

Data extraction was performed using a custom-designed tool, considering variables related to study identification (lead author, objective, and year of publication), methodological aspects (study design and level of evidence), main results, and conclusions.

The Level of Evidence (LE) was determined based on the recommendations proposed by *the Oxford Centre for Evidence-based Medicine*, which classifies evidence according to methodological design: 1A - systematic review of randomized controlled trials; 1B - randomized controlled trial with a narrow confidence interval; 1C - "all-or-nothing" therapeutic outcomes; 2A - systematic review of cohort studies; 2B - cohort study; 2C - observation of therapeutic outcomes or ecological studies; 3A - systematic review of case-control studies; 3B - case-control study; 4 - case report; 5 - expert opinion. Thus, considering the subject of study, it was expected to identify levels of evidence A, B, and C, given the possibilities that could be explored in different methodological designs[13] .

The results were initially organized and presented in a table, structured according to the variables of interest in the study. Subsequently, the evidence was analyzed and synthesized through thematic categorization, based on the semantic ordering and classification of the data, which enabled the identification of core meanings and recurring patterns among the included studies.

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RESULTS

Seven original studies (n = 7) were included in this review, as presented in the PRISMA 2020 flowchart, whose main characteristics are summarized in Table 2. It was observed that the publications are concentrated between the years 2020 and 2025, highlighting the recent and emerging nature of the topic related to the use of digital technologies in continuing education in mental health within the context of Primary Health Care (PHC).

Regarding geographic distribution, a predominance of studies conducted in middle- and low-income countries, such as India and Brazil, was identified, in addition to research in multicenter settings (Nepal and Nigeria) and in high-income countries, such as the United Kingdom and New Zealand. This finding suggests that the use of digital technologies for mental health training in PHC has been explored in different settings, particularly as a strategy to address the shortage of specialists.

Regarding the methodological design, randomized clinical trials predominated, classified as level 1B evidence, followed by implementation studies and mixed-methods studies, classified as level 2C. This profile indicates progress in the production of evidence with greater methodological rigor, especially regarding the evaluation of the effectiveness of educational interventions mediated by digital technologies, although studies aimed at understanding real-world implementation contexts are still present.

Regarding the strategies used, the studies demonstrated the application of various digital technologies, including online learning platforms, e-learning-based training, blended *learning* programs, and the digital adaptation of clinical protocols, such as mhGAP. These technologies were used primarily for training non-specialist professionals, with a focus on managing common mental disorders, such as depression and anxiety, reinforcing the potential of these tools to enhance the effectiveness of primary care.

The main outcomes analyzed involved knowledge acquisition, development of clinical skills, increased professional confidence, and improved adherence to mental health practices. Overall, the studies pointed to positive effects of digital interventions, notably a significant improvement in professionals' performance and after participating in the training, indicating the effectiveness of these strategies in strengthening care capacity.

Additionally, implementation studies showed that digital technologies facilitate expanded access to continuing education, especially in settings with human resource limitations and geographic barriers. However, significant challenges were also identified, such as the need for institutional support, the development of digital skills among professionals, and the integration of these tools into primary care work processes.

It was also observed that, although digital technologies are widely used as training tools, gaps persist in their alignment with the principles of Continuing Health Education, particularly with regard to the incorporation of these strategies in a continuous, contextualized, and integrated manner into the daily routine of health services. This finding highlights the need for progress in consolidating training models that integrate technology, practice, and critical reflection within the scope of PHC.

Table 2 – Summary of the articles included in the sample by author, year of publication, database, country of origin, language, objective, study design, sample, level of evidence, main results, and conclusions, March 2026.

Author/Year/Database/Country/Language	Objective/Design/Sample/Evidence Level	Main Results/Conclusions
Muke et al., 2020 [14], Web of Science,India,English	-To evaluate the effectiveness of a digital training program to train non-mental health professionals in primary care -Randomized clinical trial -80 healthcare professionals -1B	The digital training significantly improved the professionals' clinical skills, demonstrating feasibility and potential for scalability.
Khan et al., 2021 [15], Scopus, India, English	-To evaluate digital training for primary care professionals in the management of depression -Randomized clinical trial -120 healthcare professionals -1B	The intervention increased knowledge and capacity for managing depression
Naslund et al., 2021 [16], MEDLINE, Nepal/Nigeria, English	-To evaluate the implementation of mhGAP in digital format (e-mhGAP) in primary health care -Randomized clinical trial -200 professionals -1B	The digital version showed potential to expand access to mental health training

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Mendonça et al. 2020 [17], LILACS, Brazil, English	-To describe the implementation of mhGAP in Brazilian primary care -Implementation study -40 healthcare professionals -2C	The training contributed to greater integration of PHC and mental health care and to professional autonomy
French et al., 2025 [18], MEDLINE , United Kingdom, English	-To evaluate the implementation of online mental health training for primary care professionals -Implementation study -150 healthcare professionals -2C	Increased knowledge, clinical confidence, and adherence among professionals
Rawnsley; Stasiak, 2025 [19], MEDLINE, New, Zealand, English	-Investigating digital training needs in mental health among professionals -Mixed-methods study -100 healthcare professionals -2C	Highlighted gaps in digital training and the need for ongoing strategies
Reavley et al., 2021 [20], Scopus, Australia, English	-To evaluate the effectiveness of online training (e-learning and blended) in mental health -Randomized clinical trial -600 healthcare professionals -1B	Led to sustained improvement in knowledge and recognition of mental disorders

Legend: LE – Level of Evidence

Given this body of evidence, the findings were organized into thematic categories, constructed based on a comparative analysis of the included studies, allowing for a deeper understanding of the characteristics, applications, and implications of using digital technologies in continuing education in mental health within primary care. In this regard, four analytical categories emerged: (1) types of digital technologies used in continuing education in health; (2) continuing education strategies mediated by digital technologies; (3) contributions of these strategies to the quality of mental health care in Primary Health Care; and (4) challenges in implementing these technologies in the context of professional practice.

DISCUSSION

Types of digital technologies used in continuing health education

Continuing education in health mediated by digital technologies, in the context of mental health in Primary Health Care (PHC), has relied predominantly on virtual learning platforms, e-learning strategies, *blended learning* programs, and the digital adaptation of clinical protocols, such as mhGAP.

In this regard, the studies included in this review demonstrate that e-learning-based interventions yield consistent results in professional training. A randomized clinical trial showed that digital training aimed at non-specialist professionals led to a significant improvement in clinical mental health competencies, demonstrating feasibility and scalability[14] . Similarly , research in India found that digital training for the management of depression in primary care contributed to increased knowledge and clinical decision-making capacity, reinforcing the role of these technologies as effective tools for continuing education[15].

The use of digital platforms has also proven relevant in adapting clinical protocols for virtual environments. In this context, it was evident that the implementation of mhGAP in a digital format has the potential to expand access to mental health training, especially in settings with limited availability of specialized resources[16] . This finding aligns with initiatives in the Brazilian context, in which the incorporation of structured protocols into Primary Health Care promotes integration between mental health and primary care, in addition to increasing professionals' autonomy in care[17] .

In addition to exclusively online strategies, *blended learning* models and structured digital training programs have also been explored. More recent studies indicate that online training contributes not only to increased knowledge but also to strengthening clinical confidence and adherence to mental health practices[18] . Furthermore, research highlights that, although there has been progress in the availability of digital educational technologies, gaps still exist regarding the preparation of professionals to use these tools, underscoring the need for continuous training strategies integrated into the work context[19] .

These findings are consistent with the international literature on digital health, which indicates that the use of digital technologies in the field of health education expands access to knowledge, makes learning processes more flexible, and promotes the dissemination of evidence-based practices [4,21] . Furthermore, the digitization of educational strategies and clinical protocols is a central element for strengthening health systems, especially in primary care settings[22] .

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However, the results of this review also indicate that the effectiveness of these technologies is not guaranteed merely by their availability. The adoption of digital technologies in educational processes requires adequate pedagogical planning, including the definition of learning objectives, interactive strategies, and alignment with the needs of the professional context. This aspect is reinforced by the studies analyzed themselves, which show that more structured and contextualized interventions tend to produce better results in terms of learning and practical application[23] .

The digital technologies used in continuing education in mental health within primary care are diverse and hold great potential for professional development. However, their effectiveness depends directly on the integration of technology, pedagogical approaches, and the work context, underscoring the need for approaches that combine technological innovation with the principles of continuing health education.

Continuing education strategies mediated by digital technologies

The incorporation of digital technologies into continuing education in mental health within Primary Health Care (PHC) has been shaped by the use of multiple pedagogical strategies, among which e-learning, blended *learning*, tele-education, teleconsultation, and training based on clinical cases stand out.

In the studies analyzed, e-learning-based strategies were widely used for training PHC professionals, especially in settings with a shortage of mental health specialists. Evidence from randomized clinical trials demonstrates that interventions structured on digital platforms contribute significantly to knowledge acquisition and the development of clinical competencies in the management of common mental disorders. These results reinforce the potential of online education as a scalable and accessible strategy for professional training [14-15] .

However, the findings also suggest that exclusively asynchronous strategies may have limitations, particularly with regard to interaction among participants and the critical examination of practices—central elements of continuing health education. The effectiveness of digital technology-mediated teaching depends on the incorporation of pedagogical approaches that foster active participation and the collective construction of knowledge, avoiding the replication of traditional models centered on content transmission[23] .

In this context, *blended learning* strategies stand out, combining online learning sessions with synchronous activities or supervised practice. Although not all of the included studies explicitly adopted this model.

Another important aspect identified relates to the use of structured clinical protocols in digital format as an educational strategy. In this regard, it is evident that the adaptation of mhGAP for digital platforms enables not only the dissemination of knowledge but also support for clinical decision-making, bringing the educational process closer to the real demands of the workplace[16] . Complementarily, it is observed that the implementation of structured protocols in Primary Health Care promotes integration between primary care and mental health, expanding the teams' problem-solving capacity[17] .

In addition, strategies such as teleconsultation and clinical case discussions facilitated by digital technologies are emerging as approaches aligned with the principles of Continuing Medical Education, as they promote meaningful learning based on real-life situations encountered in daily clinical practice. Although not all studies have directly explored these strategies, it is evident that interventions incorporating continuous support and interaction among professionals tend to yield better results in terms of clinical confidence and adherence to mental health practices[18] . From this same perspective, it is emphasized that continuous training strategies integrated into the work context reinforce that learning should not be isolated but incorporated into the routine of services [19] .

These findings are consistent with the international literature on digital health education, which indicates that strategies based on active methodologies—such as case studies, collaborative learning, and synchronous interaction—have greater potential to impact the transformation of professional practices [4,21] . Such approaches promote not only the acquisition of knowledge but also the development of critical and reflective skills, which are essential for mental health care in primary health care.

However, despite the observed potential, the studies also show that not all of the initiatives analyzed fully incorporate the principles of Continuing Health Education. In many cases, digital strategies still resemble traditional teaching models, with limited interaction and little integration with the work process. This finding reinforces that the effectiveness of interventions does not depend exclusively on the technology used, but on how pedagogical processes are structured and contextualized.

Continuing education strategies facilitated by digital technologies hold great potential for improving the quality of mental health care in primary health care. However, their effectiveness is directly linked to the adoption of pedagogical approaches that go beyond traditional teaching models, incorporating the principles of continuing health education and promoting

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meaningful, context-specific learning aimed at transforming professional practices.

Contributions of Digital Technologies to Improving Mental Health Care in Primary Health Care

It is observed that the use of digital technologies in continuing health education constitutes a relevant strategy for improving mental health care in Primary Health Care (PHC), as it fosters the development of competencies, expands access to knowledge, and enhances care practices.

Among the main contributions identified, the enhancement of professionals' theoretical knowledge and clinical skills stands out. Evidence demonstrates that digital educational interventions promote a significant increase in mental health knowledge and the development of competencies related to the diagnosis and management of common mental disorders, such as depression[14,15] . These findings reinforce the potential of digital technologies as effective tools for professional development, especially when targeted at non-specialist workers.

Furthermore, studies show that digital technologies contribute to increased professional confidence and certainty in clinical decision-making. In this context, it is observed that the use of structured protocols in digital format facilitates access to evidence-based guidelines and supports clinical reasoning, thereby reducing uncertainty in case management[16] . Complementarily, it is evident that the implementation of structured strategies in Primary Health Care promotes greater professional autonomy and strengthens the integration between mental health and primary care[17] .

Another relevant contribution relates to expanding access to continuing education and reducing inequalities in professional training. The digital interventions analyzed demonstrate potential to reach professionals working in contexts with geographical and structural limitations, expanding access to training. In this regard, it is noteworthy that the digital adaptation of mhGAP represents a promising strategy for expanding mental health training in low- and middle-income countries, contributing to equity in access to knowledge[16] .

The findings also indicate that digital technologies facilitate changes in work processes and the strengthening of mental health practices in PHC. It is evident that online training programs contribute to increased adherence by healthcare professionals to mental health practices, in addition to promoting greater clinical confidence[18] . In the same vein, it is observed that digital strategies can facilitate the integration of learning and practice, provided they are incorporated in a continuous and coordinated manner into the daily routine of services [19] .

In addition, it is observed that digital technologies serve as facilitators for the adoption of evidence-based practices. The use of digitized clinical protocols, combined with educational strategies, contributes to the standardization of care and the improvement of care quality, reducing variations in clinical practice. These findings are consistent with the international literature, which highlights the role of digital health in improving the quality of care and mental health outcomes[4,21] .

However, despite the demonstrated contributions, studies also indicate that the impact of digital technologies on improving care quality depends on their proper integration into the work context. In this regard, it is observed that technology-mediated educational interventions tend to be more effective when associated with interactive, contextualized, and problem-oriented pedagogical strategies[23] . This aspect is reinforced by the studies analyzed themselves, which point to better results when technologies are used in a manner aligned with work processes and the needs of professionals.

Thus, digital technologies represent strategic tools for improving the quality of mental health care in PHC, contributing to the development of competencies, expanding access to knowledge, and strengthening care practices. However, their effectiveness depends on the integration of technology, educational processes, and work organization, reinforcing the need for approaches that promote meaningful learning and the transformation of health practices.

Challenges and limitations in the use of digital technologies in continuing education in health

Despite the demonstrated potential, the studies analyzed in this review also point to significant challenges related to the use of digital technologies in continuing education in mental health within Primary Health Care (PHC). These challenges involve structural, organizational, and pedagogical dimensions, indicating that the incorporation of these technologies into the daily routine of services still occurs unevenly and, often, in a limited manner.

Among the main barriers identified, limitations in technological infrastructure stand out, especially in low- and middle-income settings. In this context, it is observed that, although the included studies demonstrate positive results from digital interventions, their implementation depends on minimum conditions, such as internet access and the availability of appropriate devices[14-15] . This limitation becomes particularly relevant in PHC, where territorial inequalities can compromise equitable access to continuing education strategies.

Another important challenge relates to training professionals in the

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use of digital technologies. In this regard, it is evident that there are gaps in the development of digital competencies among health professionals, which can directly impact the engagement and effectiveness of educational interventions[19] . This issue indicates that the incorporation of digital technologies requires not only the provision of tools but also the preparation of professionals for their critical and competent use.

In addition, barriers related to the organization of work processes were widely identified. The overload of care-related activities, limited time for participation in educational activities, and the lack of institutional incentives constitute significant obstacles to the adoption of digital strategies. In this context, it is observed that even well-structured interventions may see professional participation compromised when there is no organizational support and integration of educational activities into the routine of services[18] .

In the pedagogical field, it is evident that some initiatives still replicate traditional teaching models, centered on content transmission, with low interaction and limited critical examination of practices. This aspect becomes particularly relevant when considering that Continuing Health Education presupposes meaningful learning, built upon the real needs of the workplace. In this sense, it is evident that the simple digitization of content does not guarantee the effectiveness of educational processes; rather, it is necessary to incorporate active methodologies and interactive strategies that promote critical reflection and the transformation of practices [23] .

Another identified challenge relates to the difficulty of integrating digital technologies into the work process in PHC. From this perspective, it is observed that educational activities, in many cases, occur in parallel with care activities, without effective coordination with the demands of the service. It is evident that the integration of educational strategies and clinical practice is fundamental to enhancing the effectiveness of teams[17] , while international evidence indicates that the incorporation of technologies must be aligned with workflows to produce a real impact on care[4,21] .

Additionally, the sustainability of digital interventions emerges as a significant challenge. Platform maintenance, continuous content updates, and the need for technical and financial support are aspects that may limit the continuity of educational initiatives over time. The study by [16] notes that, although digital strategies such as mhGAP have high scalability potential, their long-term effectiveness depends on institutional investments and structured planning.

Thus, the findings in this category show that, although digital technologies represent promising tools for continuing education and for improving mental health care in PHC, their effective implementation still faces significant challenges. Overcoming these barriers requires investments in infrastructure, the development of digital competencies, the strengthening of institutional support, and, above all, the adoption of pedagogical approaches aligned with the principles of Continuing Health Education. Only through this integration will it be possible to ensure that the use of digital technologies truly contributes to the transformation of practices and the improvement of the quality of mental health care.

Regarding limitations, this study presents some aspects that should be considered when interpreting its findings. Notably, the temporal restriction to the last five years, while appropriate for the current relevance of the topic, may have excluded relevant prior evidence. Furthermore, the heterogeneity of the included studies, both in terms of methodological designs and interventions, hindered direct comparisons and more in-depth analyses of the strategies' effectiveness, necessitating a predominantly descriptive approach.

Furthermore, potential publication bias must be considered, with a predominance of studies reporting positive results, as well as the language limitation (Portuguese, English, and Spanish), which may have restricted the inclusion of studies in other languages. Finally, it should be noted that, as this is an integrative review, it is not possible to establish causal relationships, but only to identify trends, gaps, and contributions from the existing literature.

CONCLUSION

This integrative review analyzed the scientific literature on digital technology-mediated continuing education in mental health care within Primary Health Care, highlighting its progressive incorporation into training processes, especially in contexts with structural limitations. The findings indicate that strategies such as e-learning, tele-education, and hybrid models expand access to professional training, fostering the development of clinical competencies, greater confidence in decision-making, and support for work organization in PHC.

However, the effectiveness of these initiatives depends on their integration with interactive pedagogical approaches aligned with Continuing Health Education, and challenges persist regarding infrastructure, digital competencies, and incorporation into the daily routine of services. In addition, gaps have been identified regarding the integration of technologies with Continuing Health Education and the assessment of long-term im-

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pacts. Thus, the need for investments in policies, training, and research with greater methodological rigor is reinforced, aiming to consolidate sustainable strategies for improving mental health care in PHC.

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