

***SYSTEMATIC LITERATURE REVIEW (SLR): ANALYSIS OF MENTAL
HEALTH ISSUES IN THE DIGITAL ERA***

**SYSTEMATIC LITERATURE REVIEW (SLR): ANALISIS ISU MENTAL
HEALTH DI ERA DIGITAL**

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ABSTRACT

Mental health has become a critical global issue that has significantly increased in recent years, driven by social changes and the rapid development of digital technology. This study aims to identify key domains, analyze research trends, and uncover research gaps in mental health studies using a Systematic Literature Review (SLR) approach. The methodology involves identification, screening, eligibility assessment, and in-depth analysis of 20 scientific articles published between 2023 and 2026. The results reveal four main domains in mental health research: service accessibility, technology and artificial intelligence, social factors, and global collaboration. The findings indicate that although technologies such as Artificial Intelligence (AI) and machine learning improve prediction accuracy and early detection, the primary challenges remain in limited access to mental health services and the influence of social factors. Furthermore, a gap exists between technological development and real-world implementation. The main contribution of this study is the development of an integrative mental health system model that combines access, technology, social factors, and collaboration. This model is expected to serve as a foundation for developing more effective, integrated, and sustainable mental health systems in the future.

Keywords: mental health, systematic literature review, artificial intelligence, service access, social factors.

ABSTRAK

Kesehatan mental merupakan isu global yang mengalami peningkatan signifikan dalam beberapa tahun terakhir, terutama akibat perubahan sosial dan perkembangan teknologi digital. Penelitian ini bertujuan untuk mengidentifikasi domain utama, menganalisis tren penelitian, serta menemukan kesenjangan dalam studi kesehatan mental melalui pendekatan Systematic Literature Review (SLR). Metode yang digunakan meliputi identifikasi, penyaringan, seleksi, dan analisis terhadap 20 jurnal ilmiah yang dipublikasikan pada periode 2023–2026. Hasil penelitian menunjukkan bahwa terdapat empat domain utama dalam penelitian kesehatan mental, yaitu akses layanan, teknologi dan kecerdasan buatan, faktor sosial, serta kolaborasi global. Temuan menunjukkan bahwa meskipun teknologi seperti Artificial Intelligence (AI) dan machine learning mampu meningkatkan akurasi prediksi dan deteksi dini, permasalahan utama masih terletak pada keterbatasan akses layanan dan pengaruh faktor sosial. Penelitian ini juga menemukan adanya kesenjangan antara pengembangan teknologi dan implementasi nyata di lapangan. Kontribusi utama penelitian ini adalah menghasilkan model integratif sistem kesehatan mental yang menggabungkan aspek akses, teknologi, faktor sosial, dan kolaborasi. Model ini diharapkan dapat menjadi dasar dalam pengembangan sistem kesehatan mental yang lebih efektif, terintegrasi, dan berkelanjutan di masa depan.

Kata Kunci: kesehatan mental, SLR, artificial intelligence, akses layanan, faktor sosial.

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INTRODUCTION

Mental health is one of the global issues that has significantly increased in recent years. Lifestyle changes, social pressure, and the post-pandemic impact of COVID-19 have worsened the psychological condition of society, particularly among productive-age groups such as students, workers, and healthcare professionals. Santomauro et al. (2021) showed that the COVID-19 pandemic contributed to an increased global burden of major depressive disorder and anxiety disorders in various countries. In addition, Tong et al. (2023) found that frontline healthcare workers experienced high levels of stress, anxiety, depression, and insomnia during the COVID-19 pandemic. These findings indicate that mental health has become one of the important priorities in the global health agenda.

Along with technological development, approaches to mental health management have also undergone transformation. The use of digital technologies such as Artificial Intelligence, machine learning, and sensor-based systems has increasingly been applied to support early detection, diagnosis, monitoring, and intervention in mental health. Olawade et al. (2024) explained that AI has great potential to support mental health services, particularly through detection systems, monitoring, intervention personalization, and clinical decision support. In addition, Ni and Jia (2025) showed that AI-based digital interventions have been used in various phases of mental health services, ranging from screening, therapeutic support, post-intervention monitoring, to population-based prevention.

In the context of machine learning, various algorithms have been used to predict individual psychological conditions, such as stress, anxiety, and depression. Mohamed et al. (2023) developed a mental health prediction model using Support Vector Machine (SVM), Multilayer Perceptron (MLP), and Random Forest to classify anxiety levels. The study showed that machine learning algorithms can help detect mental health conditions more systematically at an early stage. Abd Al-Alim et al. (2024) also showed that wearable sensor data analyzed using machine learning algorithms can be used to detect stress in real-life environments. This opens opportunities for the development of more adaptive, proactive, and data-driven mental health systems.

Nevertheless, although technological development shows great potential, various unresolved problems remain. One of the main challenges is limited access to mental health services, especially in developing countries and low- and middle-income countries. Kola et al. (2021) emphasized that the COVID-19 pandemic widened the mental health service gap in low- and middle-income countries due to limited resources, professional personnel, and service infrastructure. Chakrabarti (2024) also explained that digital psychiatry in low- and middle-income countries still faces challenges in terms of equitable access, evidence of effectiveness, implementation sustainability, and health system readiness.

In addition to access factors, technological approaches in mental health also need to consider social, economic, and environmental factors. Wen et al. (2024) showed that digital integration is associated with the mental health of low-income populations, particularly through increased social participation and reduced symptoms of anxiety and depression. Therefore, the development of technology-based mental health systems should not only focus on diagnostic aspects, but also consider the social, economic, digital literacy, and environmental context of users.

Based on previous studies, research related to mental health remains dispersed across various domains, such as technology, healthcare services, social factors, service access, and health policy. Kim et al. (2023) showed that digital mental health interventions can help reduce symptoms of depression and anxiety in low- and middle-income countries, but stronger evidence is still needed regarding their effectiveness, sustainability, and scalability. Alagarajah et al. (2024) also emphasized that digital mental health interventions among young people in low- and middle-income countries have potential, but are still limited by the number of studies, quality of evidence, and the need for more rigorous evaluation.

Therefore, the urgency of this study lies in the need to conduct a comprehensive synthesis of existing research in order to identify patterns, trends, and research gaps in the field of mental health. The Systematic Literature Review (SLR) approach is used in this study to provide a more structured understanding of the development of mental health research, particularly related to the use of digital technology, AI, machine learning, sensor-based systems, and digital interventions.

Through this study, it is expected that a conceptual framework can be produced that integrates the main domains in mental health, namely service access, technology, socio-economic factors, and research collaboration. In addition, this study also aims to provide new insights that can serve as a foundation for the development of more effective, integrated, equitable, and sustainable technology-based mental health systems.

Thus, this study does not only function as a literature review, but also as a scientific foundation for formulating future directions in mental health research and system development. The main focus is directed toward the use of technologies such as machine learning, AI, and sensor-based systems to support early detection, monitoring, and treatment of mental disorders in a more accurate and responsive manner according to user needs.

METHODS

This study uses a Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize research findings related to mental health issues, particularly those associated with the use of digital technologies such as Artificial Intelligence (AI), machine learning, and the Internet of Things (IoT). The SLR method was chosen because it can provide a comprehensive, systematic, and structured overview of research developments in a particular field.

This approach allows researchers to integrate findings from previous studies in order to identify patterns, trends, and research gaps that can serve as a basis for future research development.

RESULTS AND DISCUSSION

Based on the Systematic Literature Review of 20 analyzed journals, it was found that research related to mental health during the 2023–2026 period showed significant development, particularly in the integration of digital technology. These studies cover various approaches, ranging from the analysis of social factors, improvement of health service access, to the use of technologies such as Artificial Intelligence (AI) and the Internet of Things (IoT).

From the data extraction results, these studies can be grouped into four main domains:

1. Mental Health Service Access

Most studies show that limited access to mental health services remains a major problem. Several studies reveal that only a small proportion of individuals with mental disorders receive adequate services, especially in developing countries. In addition, long waiting times to obtain services also become a significant barrier. This condition causes many individuals to discontinue the treatment process.

These findings indicate that the main problem in mental health does not only lie in diagnosis, but also in service distribution and access. Although technology has developed, the implementation of equitable mental health services has not yet been achieved.

2. Technology and Artificial Intelligence (AI)

Most studies in this SLR show a significant increase in the use of technology to support mental health. The technologies used include machine learning, such as SVM for stress prediction, expert systems, Large Language Models (LLM), and digital-based mental health

applications.

The research findings show that technology can improve diagnostic accuracy, support early detection of mental disorders, and provide digital-based interventions. Nevertheless, several limitations were also found, such as dependence on data quality, potential algorithmic bias, and a lack of integration with real health systems.

Although AI shows great potential, its role remains limited as a supporting tool, not as the main solution. Technological implementation that is not supported by a good service system will result in less optimal impact.

3. Social Factors and Quality of Life

The studies show that social factors have a major influence on mental health conditions. These factors include economic conditions, work environment, social support, and the impact of the COVID-19 pandemic. Several studies show that individuals with less supportive social conditions have a higher risk of experiencing mental disorders. In addition, quality of life is also an important indicator in assessing a person's mental health condition.

These findings indicate that mental health cannot be separated from its social context. Medical or technological approaches alone are not sufficient to address this problem comprehensively.

4. Collaboration and Global Approaches

Several studies emphasize the importance of global collaboration in mental health research development. Approaches such as open science enable data sharing among researchers, cross-country collaboration, and accelerated innovation. However, challenges arise related to data privacy, information security, and data standardization.

Global collaboration is key to addressing the complexity of mental health problems. However, clear regulations are needed to maintain a balance between data openness and privacy protection.

Table 1. SLR Results

No.	Reference (Author, Year)	Title	Keywords	Focus/Domain	Main Findings
1	Bacellar et al. (2023)	Opening up mental health research	Mental health, open science	Collaboration & Open Science	Open science accelerates mental health research through data sharing.
2	Skovira et al. (2023)	Closing the Mental Health Access Gap Through Novel Analytics	Access, healthcare	Service Access	Only a small proportion of patients receive adequate mental health services.
3	Carter et al. (2021)	Digital mental health in low- and middle-income countries: Challenges and opportunities	Digital health, LMIC	Technology	Digital mental health has potential to support mental health services in developing countries.
4	Fatah & Hasanah (2025)	Prediksi tingkat stress dan kesehatan mental mahasiswa menggunakan algoritma SVM	SVM, stress prediction	AI & Prediction	SVM can be used to predict stress levels and mental health conditions.
5	Adi Istya et al. (2024)	Sistem pakar deteksi kondisi kesehatan mental pada Generasi Z	Expert system	AI & Expert System	Expert systems can support early detection of mental

No.	Reference (Author, Year)	Title	Keywords	Focus/Domain	Main Findings
		menggunakan metode backward chaining			health conditions.
6	Fitriani et al. (2023)	Analisis kesehatan mental di masyarakat	Mental health analysis	Social Factors	Social factors influence mental health conditions in society.
7	Rijayanti et al. (2026)	Rancang bangun chatbot interaktif sebagai media edukasi kesehatan mental remaja menggunakan RAD	Information system, chatbot	Technology	Interactive chatbots can be used as educational media for adolescent mental health.
8	Nurhafiyah & Marcos (2023)	Sistem pakar diagnosis kesehatan mental pada mahasiswa Universitas Amikom Purwokerto	Expert system	AI	Expert systems can improve initial mental health diagnosis among students.
9	Dar et al. (2025)	Unveiling the mental health services gap: Help-seeking and referral patterns in South Kashmir, India	Services, treatment	Service Access	Limited services remain a major global challenge in mental health care.
10	Waechter et al. (2023)	Prevention of mental illness within public health: An analysis of progress via systematic literature review and a pathway forward	Quality of life, prevention	Social Factors	Public health prevention is important to improve quality of life and reduce mental illness risk.
11	Rugulies et al. (2023)	Work-related causes of mental health conditions and interventions for their improvement in workplaces	Work stress	Social Factors	Work environment has a significant influence on mental health conditions.
12	Li et al. (2023)	Impact of the COVID-19 pandemic on treatment for mental health needs	COVID-19, mental health	Social Factors	The COVID-19 pandemic increased mental health needs and changed service use patterns.
13	Valencia-Pecho et al. (2026)	Impact of Depression, Anxiety, and Stress on Mental Health Among Peruvian Healthcare Professionals	Global health	Global Issues	Depression, anxiety, and stress are major mental health issues among healthcare professionals.
14	Narkhede (2025)	AI mental health detection	AI, prediction	AI	AI can support early detection of mental health disorders.
15	Sharma et al. (2023)	Cognitive Reframing of Negative Thoughts through Human-Language Model	Cognitive therapy, LLM	AI	Human-language model interaction can assist cognitive reframing of negative

No.	Reference (Author, Year)	Title	Keywords	Focus/Domain	Main Findings
		Interaction			thoughts.
16	Narkhede (2025)	AI-Powered Mental Health Detection System Using Text Analysis	LLM, text analysis	AI	Text analysis and LLM-based approaches can support mental health detection.
17	Sihombing et al. (2026)	Effectiveness of Digital Mental Health Intervention in Middle Eastern Conflict Zones	Intervention, digital mental health	Social Factors	Digital mental health interventions can improve service access in conflict areas.
18	Brocki et al. (2023)	Deep Learning Mental Health Dialogue System	Deep learning, dialogue system	Access & Technology	Main barriers include stigma, cost, and limited access to mental health support.
19	Ramadhan & Misbah (2025)	Sistem pemantauan stres dan kecemasan untuk deteksi dini kesehatan mental memakai sensor biomedik berbasis IoT dan deep neural networks	IoT, biomedical sensor	Technology	IoT and biomedical sensors can monitor stress and anxiety conditions in real time.
20	Taban et al. (2024)	Effectiveness and cost-effectiveness of community-based mental health services for individuals with severe mental illness in Iran	Meta-analysis, community-based services	Global & Service Access	Integrated and community-based service systems are needed to improve mental health care effectiveness.

The Systematic Literature Review of 20 articles shows that mental health research in recent years has undergone a significant shift in orientation. Previously, mental health was more often understood as a clinical and individual issue. However, the findings of this SLR show that mental health has now developed into a multidimensional issue involving healthcare services, digital technology, social factors, quality of life, policy, and cross-disciplinary collaboration. In other words, mental health can no longer be understood only as an individual psychological condition, but as the result of interactions between individuals, social environments, service access, and technological and institutional support systems.

Access Gap as the Root Problem of Mental Health

One of the most prominent findings in this SLR is that limited access to mental health services remains a major issue. Several studies show that only a small proportion of individuals with mental disorders obtain adequate services. These barriers appear in various forms, such as limited professional personnel, high service costs, social stigma, long waiting times, and low public literacy regarding mental health. Findings from Skovira et al. (2023), Dar et al. (2025), Brocki et al. (2023), and Taban et al. (2024) indicate that access problems do not only occur in developing countries, but also represent a global issue affecting the effectiveness of mental health systems broadly.

This condition shows that mental health problems do not stop at the ability to detect or diagnose mental disorders. Good detection will not have a significant impact if individuals

identified as having mental disorders cannot access follow-up services. Therefore, the service gap becomes a critical point that must be considered in the development of mental health systems. Systems that only focus on diagnosis without providing referral pathways, intervention, and continuous assistance risk producing partial solutions.

In this context, mental health services need to be directed toward a model that is more inclusive, accessible, and sustainability-oriented. Community-based services, digital interventions, remote counseling, and integrated referral systems can become alternatives to expand service reach. However, it should be emphasized that expanding access is not merely a matter of providing digital platforms, but also includes human resource readiness, user trust, data security, and regulatory support.

Digital Technology as an Enabler, Not a Replacement for Service Systems

The second dominant domain in the SLR results is the use of digital technology, particularly Artificial Intelligence (AI), machine learning, expert systems, Large Language Models (LLM), chatbots, IoT, and biomedical sensors. The studies analyzed show that technology has great potential to support early detection, stress prediction, initial diagnosis, mental health education, and real-time monitoring of psychological conditions. For example, the use of SVM for stress prediction, backward chaining-based expert systems for detecting Generation Z mental health conditions, educational chatbots for adolescents, and IoT and deep neural networks for monitoring stress and anxiety indicate a new direction in technology-based mental health research.

These findings show that technology can act as an enabler in accelerating the identification process of mental health problems. AI and machine learning can process large amounts of data, identify hidden patterns, and provide faster predictions compared with manual approaches. Chatbots and LLMs can help provide initial responses, education, and mild psychological support, especially for users who are not yet ready to access professional services directly. Meanwhile, IoT and biomedical sensors allow continuous monitoring of physiological conditions related to stress and anxiety.

However, the SLR findings also show that technology should not be positioned as a replacement for professionals or mental health service systems. The role of technology should be understood as a supporting tool that strengthens detection, monitoring, education, and referral processes. Without integration with real service systems, technology risks becoming merely technically attractive applications with weak clinical and social impact. In addition, mental health technology still faces serious challenges, such as algorithmic bias, uneven data quality, limited clinical validation, user data confidentiality, and the risk of simplifying human psychological conditions into numbers or diagnostic categories.

Therefore, the contribution of technology in mental health must be developed within a human-centered digital mental health framework. This means that technology needs to be designed by considering user needs, social context, professional involvement, data security, and service sustainability. Good technology is not only technology that is algorithmically accurate, but also technology that is ethical, easy to use, trustworthy, and truly connected to relevant support pathways.

Social Factors as Determinants of Mental Health That Cannot Be Ignored

The SLR results show that social factors have a very strong influence on mental health conditions. The studies analyzed identified various social factors related to mental health, such as economic conditions, work environment, social support, academic pressure, the COVID-19 pandemic, social conflict, and quality of life. Findings from Fitriani et al. (2023), Rugulies et al. (2023), Li et al. (2023), Waechter et al. (2023), Valencia-Pecho et al. (2026), and Sihombing et al. (2026) show that mental health cannot be separated from the social context of an individual's life.

This is important because many technological approaches in mental health tend to

focus on individual symptoms, such as stress, anxiety, depression, or language patterns indicating psychological disorders. In fact, these symptoms are often the result of broader social pressures. A worker experiencing stress may not only need a meditation application, but also a healthier work environment. A student experiencing anxiety may not only need a counseling chatbot, but also a stronger academic and social support system. Individuals in conflict zones or areas with limited services do not only need digital interventions, but also security, community support, and access to basic services.

Therefore, an effective mental health approach must be ecological and contextual. This means that mental health systems need to consider individual, family, community, institutional, and policy factors. Technology can help detect symptoms, but social factors explain why these symptoms arise and how interventions should be designed. Without understanding the social context, mental health technology may fail to capture the root causes and only address surface-level symptoms.

Collaboration and Open Science as the Foundation for Accelerating Innovation

The fourth domain emerging from the SLR results is the importance of global collaboration and open science approaches. Bacellar et al. (2023) emphasized that data openness, cross-country collaboration, and knowledge sharing can accelerate the development of mental health research. In the complex context of mental health, no single discipline can answer all problems independently. Collaboration is needed between psychology, psychiatry, computer science, public health, public policy, sociology, education, and technology ethics.

Collaboration is highly important because each domain has its own limitations. Technology researchers can develop prediction models, but need mental health experts for clinical validation. Health practitioners can understand patient needs, but require technological support to expand service reach. Policymakers can design regulations, but require strong scientific evidence so that policies are properly targeted. Therefore, future mental health research must move from a sectoral approach toward a collaborative and transdisciplinary approach.

However, collaboration and data openness also bring challenges. Mental health data are highly sensitive data. The use of open data must be balanced with privacy protection, data anonymization, user consent, and strict ethical standards. Therefore, open science in mental health should not be understood as unlimited openness, but as responsible openness. The main principle is to accelerate innovation without sacrificing individual security and dignity.

Cross-Domain Synthesis: Toward a Holistic Digital Mental Health Framework

When the four main domains in this SLR are connected, it becomes clear that mental health is an interconnected system. Service access is influenced by social factors, such as economy, stigma, geographical location, and community support. Technology can help expand service access, but its effectiveness is determined by user readiness, digital literacy, and integration with the health system. Social factors determine the level of mental disorder risk and the success of interventions. Meanwhile, global collaboration accelerates the development of more responsive technologies and policies.

Therefore, the findings of this SLR lead to the need to build a conceptual framework that integrates four main components: service access, digital technology, social factors, and research collaboration. These four components cannot be separated. Technology without service access only produces detection systems without follow-up. Service access without social understanding can produce interventions that are not contextually appropriate. Social factors without technological support can be difficult to monitor widely. Collaboration without data ethics can create privacy risks and public distrust.

This integrative framework can be understood as a holistic digital mental health model. In this model, AI, machine learning, IoT, and chatbots function as supporting

instruments for detection, education, and monitoring. Health services function as intervention and referral pathways. Social factors serve as the context that explains user risks and needs. Collaboration functions as a mechanism for strengthening research, innovation, and policy. With this approach, mental health systems become not only more technologically advanced, but also more humane, equitable, and sustainable.

Theoretically, the results of this SLR expand the understanding that mental health cannot be sufficiently analyzed through a single perspective. Findings from various studies show that clinical, technological, social, and policy approaches need to be placed within a complementary analytical framework. This reinforces the view that mental health is a complex phenomenon requiring a multidisciplinary approach.

In addition, this SLR contributes to the development of digital mental health literature. The analyzed studies show that digital technology has become an important part of the mental health ecosystem. However, these findings also emphasize that the effectiveness of technology greatly depends on its integration with social context and service systems. Therefore, digital mental health theory needs to move from a technology-centered approach toward a human- and system-centered approach.

From a practical perspective, this SLR provides several important directions. First, the development of mental health applications needs to be accompanied by referral mechanisms to professional services. Applications should not stop at detection or risk classification, but must be able to connect users with appropriate support. Second, mental health technology design needs to consider user digital literacy, easy-to-understand language, accessibility, and data security.

Third, educational institutions and workplaces need to use the results of this study to build early detection systems and psychological support. Students and workers are groups vulnerable to stress, anxiety, and social pressure. Therefore, technology-based approaches can be used for initial monitoring, but must still be complemented by counselors, psychologists, or real support services.

Fourth, governments and health institutions need to develop digital mental health policies that regulate application validation, data protection, AI ethical standards, and integration with national health systems. Without clear policies, the development of mental health technology may progress rapidly but not always safely, equitably, or effectively.

Although technology-based mental health research is growing rapidly, this SLR identifies several important research gaps. First, many studies still focus on developing models or systems, but have not conducted long-term validation in real-use contexts. Second, most AI-based systems are still oriented toward prediction accuracy, while ethical aspects, user acceptance, and social impacts have not been widely studied in depth.

Third, research integrating psychological, social, physiological, and environmental data remains limited. In fact, mental health is influenced by many interacting factors. Fourth, research in developing countries needs to be strengthened, especially because challenges in service access, stigma, and infrastructure limitations differ greatly from those in developed countries. Fifth, collaboration models between academics, healthcare professionals, governments, and technology developers are still needed so that solutions do not stop at prototypes, but can truly be implemented.

Based on these gaps, future research needs to be directed toward developing more integrative mental health systems. Such systems should combine AI-based detection, IoT-based monitoring, digital interventions, professional support, and social factor analysis. In addition, future studies need to use longitudinal designs, field testing, and participatory approaches so that the solutions developed truly match user needs.

The main contribution of this SLR is the development of an understanding that technology-based mental health cannot be separated from service access and social factors. This SLR shows that technology indeed has great potential, but technology will only be effective if it is placed within a broader system. Therefore, this study offers a new direction

that digital mental health development should move toward an integrative model, connecting early detection, service access, social context, and research collaboration.

Conceptually, this SLR can produce an integrative model consisting of four pillars: service access, digital technology, social determinants, and collaborative ecosystem. These four pillars can serve as a basis for designing future mental health systems. This model is not only relevant for academic research development, but can also be used as a reference by educational institutions, work organizations, health institutions, and governments in building more responsive mental health systems.

Overall, the results of this SLR emphasize that mental health is a complex issue requiring non-partial solutions. AI-based early detection, chatbots, IoT, and expert systems are important innovations, but they are not sufficient if they are not connected to real services, social factors, and supportive policies. Similarly, increasing service access will not be optimal without technological support and cross-sector collaboration.

Therefore, the future direction of mental health research and implementation needs to prioritize integration. An ideal mental health system is not only a system capable of detecting disorders more quickly, but also one that understands user context, provides appropriate support pathways, protects data privacy, and supports service sustainability. With this approach, digital technology can function not merely as a diagnostic tool, but as part of a mental health ecosystem that is more adaptive, inclusive, and humane.

CONCLUSION

Based on the Systematic Literature Review (SLR) of 20 scientific journals discussing mental health during the 2023–2026 period, it can be concluded that mental health issues are complex problems involving various multidimensional aspects, including service access, technological development, social factors, and global collaboration in research.

The analysis shows that there are four main domains dominating mental health research, namely: (1) mental health service access, (2) technology and artificial intelligence, (3) social factors and quality of life, and (4) collaboration and global approaches. These four domains are closely related and form an interconnected system that influences the effectiveness of mental health management.

In terms of service access, a significant gap remains between the need for and availability of mental health services, especially in areas with limited resources. Meanwhile, technological developments such as Artificial Intelligence (AI), machine learning, and the Internet of Things (IoT) show great potential in supporting early detection and prediction of mental conditions, although their implementation still faces various challenges, such as data quality and system integration.

In addition, social factors have proven to exert a highly significant influence on individual mental health conditions. Economic conditions, environment, and social support are important determinants that cannot be ignored in the design of mental health systems. This shows that approaches focusing only on technological or medical aspects are not sufficient to address the problem comprehensively.

Based on the synthesis of all findings, this study proposes an integrative model stating that a mental health system is a function of four main components: service access, technology, social factors, and collaboration. This model emphasizes that effective mental health management must be carried out in an integrated and non-partial manner.

The main contribution of this study is to provide a comprehensive understanding of the current mental health research map and to generate new insight that technology acts as an enabler, not as the main solution. Therefore, the development of future mental health systems needs to prioritize the integration of technology and sustainable social approaches.

As a recommendation, future research is expected to develop technology-based mental health system models integrated with real-time data, particularly through the use of IoT and machine learning to improve prediction accuracy and intervention effectiveness. In addition, further

studies are needed regarding ethical aspects, data privacy, and policies in the implementation of mental health technology so that it can provide optimal benefits to society. Thus, this study is expected to serve as a scientific foundation for the development of mental health systems that are more adaptive, integrated, and responsive to community needs in the digital era.

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