

Review Article

Reimagining community mental health nursing: integrating digital health, artificial intelligence, early intervention and recovery-oriented care – a narrative review

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ABSTRACT

Community mental health nursing is undergoing a substantial transformation driven by digital health, artificial intelligence (AI), early intervention, and recovery-oriented approaches. This narrative review examines how these emerging domains can be integrated to strengthen accessible, proactive, person-centred community mental health services. Literature published primarily between 2020 and 2026 was explored through PubMed/MEDLINE, Scopus, Web of Science, CINAHL, PsycINFO, and the Cochrane Library using MeSH terms and related keywords encompassing community mental health services, psychiatric nursing, telemedicine, digital health, AI, early intervention, recovery, peer support, and primary healthcare. The evidence indicates that telepsychiatry, mobile health applications, digital self-management platforms, and remote monitoring can improve service accessibility, continuity, engagement, and symptom management, although digital exclusion and adherence remain important challenges. AI-based machine learning, predictive analytics, and conversational agents demonstrate potential for early risk identification, personalized intervention, symptom monitoring, and clinical decision support. However, limitations related to external validation, algorithmic bias, transparency, privacy, and limited nursing-specific evidence require careful consideration. Recovery-oriented and peer-supported approaches remain essential for promoting autonomy, empowerment, social functioning, and meaningful participation. The review proposes a human-centred model in which AI and digital technologies augment, rather than replace, therapeutic nursing relationships and professional judgement. Future community mental health services should integrate technological innovation with ethical governance, digital inclusion, early intervention, interdisciplinary collaboration, and recovery-focused nursing practice.

Keywords: Community mental health nursing, Digital health, Artificial intelligence, Telepsychiatry, Early intervention, Recovery-oriented care, Predictive analytics, Mental health, Peer support, Community-based care

INTRODUCTION

Mental health care is undergoing a substantial transformation from institution-centred treatment toward community-based, person-centred, preventive, and recovery-oriented models. The World Health Organization (WHO) has emphasized that mental health systems need to move beyond hospital-centred services and develop interconnected community networks capable of providing promotion, prevention, treatment, rehabilitation, and social support.¹ Community mental health nursing is particularly important within this transformation because nurses frequently provide continuous contact with individuals and families across primary care, community clinics, outreach services, home-based care, schools, workplaces, rehabilitation settings, and crisis services. The contemporary role of the community mental health nurse therefore extends beyond symptom monitoring and medication administration to include early identification, psychosocial intervention, health education, care coordination, recovery support, and advocacy.²

The need for such transformation is intensified by persistent gaps between population mental health needs and available specialist services. WHO guidance recommends person-centred and rights-based community mental health services that strengthen autonomy, social participation, recovery, and continuity of care.³ These principles are highly compatible with nursing practice because nurses are positioned at the interface between individuals, families, communities, and multidisciplinary services. Recovery-oriented care further shifts the focus from simply controlling symptoms to supporting individuals in developing meaningful lives, maintaining relationships, improving functioning, and exercising choice. Evidence from community-based recovery literature suggests that recovery-oriented interventions can strengthen empowerment, self-management, social participation, and service engagement, although implementation remains inconsistent.^{4,5}

Digital health has introduced another major dimension to community mental health nursing. Telepsychiatry, mobile applications, web-based interventions, digital self-management platforms, remote monitoring, electronic care pathways, and online peer-support systems can extend mental health services beyond conventional clinic boundaries. A recent meta-analysis of randomized trials involving telepsychiatry found that remote treatment can achieve outcomes comparable with, and in some circumstances superior to, face-to-face treatment for selected psychiatric conditions.⁶ Similarly, community interventions targeting anxiety and depression demonstrate that interventions delivered outside conventional specialist settings can contribute to symptom improvement and improved access to care.⁷ Digital approaches may therefore support nurses in reaching people who experience geographical, financial, transportation, stigma-related, or workforce barriers.

AI represents a further evolution of digital mental health. Machine learning, natural language processing, conversational agents, predictive analytics, automated screening, clinical decision-support systems, and generative AI are increasingly being investigated for mental health applications. A 2025 systematic review identified 85 studies examining AI applications in diagnosis, monitoring, and intervention, with machine-learning models, random forests, support-vector machines, and AI conversational agents among commonly studied approaches.⁸ A 2026 scoping review of reviews similarly found rapid growth of AI research in mental health but highlighted limited external validation, overfitting, uneven representation of disorders and populations, and relatively limited evidence concerning nurses and allied health professionals.⁹ Thus, AI should be viewed as a clinical-support technology rather than a substitute for therapeutic relationships or professional nursing judgement.

Early intervention is another essential component of contemporary community mental health nursing. Mental health nurses can identify changes in mood, behaviour, functioning, sleep, medication adherence, substance use, social withdrawal, self-harm risk, and psychotic symptoms during routine community encounters. Early-intervention models are particularly important in psychosis, where timely recognition and coordinated multidisciplinary treatment may reduce prolonged untreated illness and improve functional outcomes. Evidence indicates that implementation of early-intervention psychosis services is influenced by leadership, workforce capacity, service integration, referral pathways, training, and local system characteristics.¹⁰ Recent evidence also suggests that the benefits of specialist early-intervention services may require structured transition and continuity strategies when individuals move into usual care.¹¹

The convergence of digital health, AI, early intervention, and recovery-oriented care consequently creates an opportunity to redefine the community mental health nurse as a digitally enabled clinical coordinator, early-warning practitioner, therapeutic communicator, recovery facilitator, and patient advocate. Nurses can potentially use digital platforms to monitor symptoms and treatment adherence, AI-supported tools to identify risk patterns, telehealth to maintain therapeutic contact, and recovery-oriented interventions to ensure that technological care remains person-centred. Importantly, digitalisation should not create a technologically sophisticated but socially disconnected model of care. Digital exclusion, privacy concerns, algorithmic bias, misinformation, low digital literacy, and the possibility of inappropriate automated recommendations may disproportionately affect vulnerable populations. WHO therefore emphasizes that AI in health must be developed and implemented around ethics, human rights, transparency, accountability, equity, and protection from harm.¹²

Against this background, this narrative review examines how community mental health nursing can be reimaged

through the integration of four complementary domains: digital health, AI, early intervention, and recovery-oriented care. The review specifically considers emerging evidence regarding clinical applications, nursing roles, community implementation, patient outcomes, ethical considerations, and future directions. The central proposition is that technology should augment-not replace-the therapeutic, relational, and advocacy functions of community mental health nursing.

LITERATURE REVIEW

Review design

A narrative literature review design was adopted to synthesize contemporary evidence concerning the intersection of community mental health nursing, digital health, AI, early intervention, and recovery-oriented care. A narrative approach was selected because the literature spans heterogeneous methodologies, including randomized controlled trials, systematic reviews, integrative reviews, scoping reviews, implementation studies, service evaluations, and conceptual/governance literature. Rather than estimating a pooled effect size, the review aimed to identify emerging patterns, clinical applications, implementation challenges, and implications for community mental health nursing.

The literature search focused primarily on evidence published between January 2020 and August 2026, thereby emphasizing contemporary developments in digital mental health and AI while retaining foundational recent evidence regarding community and recovery-oriented nursing. Evidence from WHO guidance documents published during the same period was also incorporated because international policy recommendations are directly relevant to community mental health service redesign.

Information sources

Electronic searches were undertaken conceptually across PubMed/MEDLINE, Scopus, Web of Science, CINAHL, PsycINFO, and the Cochrane Library. WHO publications were searched separately for policy and governance documents related to community mental health, digital health, and AI. Reference lists of relevant reviews were additionally examined to identify studies not retrieved through database searching. The search strategy was constructed around five major concepts: community mental health; mental health nursing; digital health; AI; and recovery/early intervention. Controlled vocabulary, particularly MeSH terminology, was combined with free-text keywords to improve sensitivity. The principal MeSH and keyword framework is presented in Table 1, which was used to guide the literature identification process.

Table 1: MeSH-based search strategy used for the narrative review.

Concepts	MeSH terms/controlled vocabulary	Free-text terms
Mental health	"Mental Health" [MeSH]	Mental health, psychiatric health, psychological health
Community care	"Community Mental Health Services" [MeSH]	Community mental health, community psychiatric care, community-based mental health
Nursing	"Psychiatric Nursing" [MeSH]	Mental health nursing, psychiatric nursing, community mental health nurse
Digital health	"Telemedicine" [MeSH], "Mobile Applications" [MeSH]	Digital health, digital mental health, e-health, m-health, telehealth, telepsychiatry
AI	"Artificial Intelligence" [MeSH]	Artificial intelligence, machine learning, deep learning, NLP, chatbot, conversational agent, predictive analytics
Early intervention	"Early Intervention, Educational" [MeSH]	Early intervention, early detection, early psychosis intervention, risk prediction
Recovery	"Rehabilitation" [MeSH]	Recovery-oriented care, personal recovery, psychiatric rehabilitation, self-management
Peer support	"Peer Group" [MeSH]	Peer support, peer-led intervention, peer recovery
Primary care/ community	"Primary Health Care" [MeSH]	Primary care, community outreach, home-based care
Outcomes	"Treatment Outcome" [MeSH]	Recovery, quality of life, functioning, symptom reduction, service engagement

A representative PubMed search string was: ("Community Mental Health Services" [MeSH] OR "community mental health" OR "community psychiatric care") AND ("Psychiatric Nursing" [MeSH] OR "mental health nursing" OR "community mental health nurse") AND ("Telemedicine" [MeSH] OR "Mobile Applications" [MeSH] OR digital health OR telepsychiatry OR "digital mental health") AND ("Artificial Intelligence" [MeSH] OR artificial intelligence OR machine learning OR chatbot OR "conversational agent" OR predictive analytics) AND ("Rehabilitation" [MeSH] OR recovery OR "recovery-

oriented" OR "early intervention" OR "early detection"). The search strategy was intentionally broad because the objective was to understand the convergence of multiple domains rather than evaluate one intervention alone.

Eligibility criteria

Studies were considered relevant when they addressed at least one of following: community mental health services; mental health nursing; digital or telehealth interventions; AI-supported mental health care, early detection/

intervention, recovery-oriented practice; peer support; or community-based psychosocial care. Empirical studies, systematic reviews, scoping reviews, integrative reviews, narrative reviews, and authoritative policy/ guidance documents were eligible.

Priority was given to studies published from 2020 to August 2026, studies involving human participants, and literature directly relevant to community or outpatient mental health. Studies exclusively addressing inpatient medical care without implications for community mental health were not prioritized. Articles without sufficient methodological information, editorials unrelated to the review objectives, and studies focused solely on technical AI performance without meaningful mental health relevance were excluded from the main synthesis.

Study selection and data extraction

Titles and abstracts were conceptually screened according to eligibility criteria, followed by assessment of relevant full-text publications. Data were extracted under predefined categories: author/ year, country, objective, study design, population/sample, sampling strategy, data-collection instruments, major findings, and conclusions. For systematic and scoping reviews, the “sample” refers to number of included studies rather than individual participants. This distinction is important because evidence in field consists of both primary trials and secondary evidence syntheses.

Narrative synthesis

Evidence was organized thematically into six domains: digital transformation of community mental health nursing; AI-enabled assessment and prediction; digital therapeutic interventions; early intervention and proactive monitoring; recovery-oriented and peer-supported care; and nursing leadership, ethics, equity, and implementation.

Because of substantial heterogeneity in populations, interventions, outcomes, and methodologies, statistical meta-analysis was not undertaken. Instead, findings were compared according to direction of effects, clinical relevance, feasibility, implementation requirements, and implications for nursing practice. This approach is consistent with the purpose of a narrative review, which is to interpret a broad and rapidly evolving evidence base rather than provide a pooled treatment estimate.

Ethical considerations

As this review synthesized publicly available literature and didn't involve recruitment of human participants/ collection of identifiable primary data, institutional ethical approval not required. Review nevertheless incorporated ethical considerations surrounding AI, digital surveillance, informed consent, confidentiality, algorithmic bias, accessibility and human oversight. WHO guidance emphasizes that AI technologies in health should be

designed around ethical principles, human rights, transparency, accountability, equity and protection of autonomy.

OVERVIEW OF THE EVIDENCE BASE

The literature demonstrates a clear movement toward hybrid community mental health models in which face-to-face nursing care is complemented by telehealth, mobile technologies, digital self-management, AI-supported assessment, online peer support, and remote monitoring. The evidence does not support replacing community mental health professionals with technology. Instead, the strongest conceptual direction is a human–technology partnership, in which digital tools extend the reach and continuity of professional care.

Evidence summarized in Table 2 illustrates this transition across several countries and populations. Studies ranged from randomized controlled trials of digital interventions to systematic reviews of AI, recovery-oriented services, and mental health nurse-delivered interventions.

DIGITAL TRANSFORMATION OF COMMUNITY MENTAL HEALTH NURSING

The evidence suggests that digital health is becoming an important extension of community mental health nursing rather than an independent replacement for conventional care. Telepsychiatry is one of the most established components. A systematic review and meta-analysis of 32 randomized trials involving 3,592 participants found that telepsychiatry was broadly comparable with face-to-face treatment and showed potential advantages for some disorders.⁶ These findings are particularly relevant to community nurses because telehealth can maintain contact between scheduled visits, facilitate multidisciplinary communication, support follow-up after discharge, and reduce geographic barriers. Digital interventions also provide opportunities for stepped and low-intensity care. Community interventions for anxiety and depression have demonstrated that psychological support can be delivered through non-specialist and community-based pathways.⁷ Digital platforms may permit nurses to provide psychoeducation, symptom monitoring, behavioural activation support, medication education, sleep interventions, relapse-prevention plans, and referral guidance. However, digital delivery should be integrated into a broader clinical pathway rather than treated as an isolated application. Acceptability is a key determinant of implementation. Lau et al found that digital mental health interventions for depression and anxiety were generally acceptable, although engagement differed between interventions and users.¹⁵ This finding has direct implications for community nurses. Simply prescribing an application does not constitute an effective digital intervention. Nurses may need to introduce the technology, explain its purpose, assess digital literacy, monitor engagement, troubleshoot barriers, and determine when escalation to face-to-face assessment is necessary.

Table 2: Representative evidence informing the review.

Authors	Citation	Year	Country	Objective	Research methodology: design, sample/population, sampling	Data-collection tool	Main results	Conclusions
O'Connell et al	10	2021	Ireland	Identify barriers/facilitators to early-intervention psychosis services	Systematic review/narrative synthesis; studies of EIP implementation; database-based purposive eligibility sampling	Structured data extraction and thematic synthesis	Leadership, resources, workforce, training and integration influenced implementation	EIP requires system-level support and coordinated implementation
Dickens et al	13	2023	UK/Australia/ NZ/ Canada/ USA/ Ireland	Evaluate mental health nurse-delivered interventions	Systematic review of 51 RCTs; 11,266 participants	Trial outcome extraction; risk-of-bias assessment	348 comparisons; significant effects occurred in some outcomes but evidence quality was variable	Stronger nurse-led intervention trials are needed
Buechner et al	7	2023	UK/international	Evaluate community interventions for anxiety/depression	Systematic review; community adults and young people	Database screening and standardized extraction	Community interventions showed potential for improving anxiety/depression outcomes	Community delivery can expand access to mental health care
Jørgensen et al	14	2021	Denmark	Examine recovery-oriented intersectoral care	Integrative review; literature on hospital-community transitions	Critical appraisal and integrative synthesis	Continuity, collaboration and recovery orientation were important across service boundaries	Intersectoral integration supports recovery-oriented care
Charoensuk et al	5	2023	Thailand/ international	Identify recovery-oriented nursing practices for schizophrenia	Integrative review; multidisciplinary literature	Literature search, critical analysis and thematic synthesis	Recovery-oriented nursing emphasizes empowerment, partnership, self-management and individualized care	Nurses are well positioned to provide recovery-oriented community care
Cruz-Gonzalez et al	8	2025	International	Review AI for diagnosis, monitoring and intervention	Systematic review; 85 studies	Searches across CCTR, CINAHL, PsycINFO, PubMed and Scopus; methodological assessment	ML models were frequently used for diagnosis/monitoring and chatbots for intervention	AI is promising but requires robust datasets and interpretability
Abu-Mahfouz et al	9	2026	Saudi Arabia/ international	Map evidence from reviews of AI in mental health	Scoping review of reviews; 31 reviews	MEDLINE, Embase, PsycINFO and IEEE Xplore; thematic synthesis	Evidence concentrated on depression/anxiety; nurses and several populations were underrepresented	External validation and clinically relevant research are required
Lau et al	15	2024	Canada/ international	Examine acceptability of digital interventions	Systematic review; studies of digital depression/anxiety interventions	Database search and intervention/acceptability extraction	Digital interventions were generally acceptable, but engagement and adherence varied	Acceptability is promising but sustained engagement remains important

Continued.

Authors	Citation	Year	Country	Objective	Research methodology: design, sample/population, sampling	Data-collection tool	Main results	Conclusions
Hagi et al	6	2023	International	Compare telepsychiatry with face-to-face care	Systematic review/meta-analysis; 32 RCTs, 3,592 participants	Standard psychiatric symptom scales extracted from RCTs	Telepsychiatry showed comparable or better symptom outcomes in the selected disorders	Telepsychiatry can be clinically viable for several conditions
Klos et al	16	2021	Argentina/ USA	Assess AI chatbot for anxiety/depression	Pilot RCT; university students	PHQ-9, GAD-7 and engagement measures	AI chatbot intervention demonstrated feasibility and potential symptom benefit	AI conversational agents warrant larger controlled trials
Morriss et al	17	2021	UK	Evaluate online peer support for depression/anxiety self-management	Automated RCT; public participants with depression/anxiety	Online symptom and service-use measures	Digital peer-support intervention demonstrated feasibility, although engagement challenges occurred	Online peer support may complement conventional self-management
Jacobson and Nemesure	18	2021	USA	Predict response to digital mental health intervention	Secondary analysis of transdiagnostic RCT	Symptom scales and machine-learning/predictive models	AI models showed potential for identifying differential treatment response	Predictive analytics could help match patients with appropriate levels of care
Huang et al	19	2024	China/ USA/ UK	Evaluate digital interventions during psychotherapy waiting periods	Systematic review; 8 eligible studies including 5 RCTs	Database screening and standardized extraction	Some symptom reduction occurred, but many interventions did not outperform waiting or the self-help controls; dropout was a concern	Digital interventions may provide interim support but adherence remains problematic
Chien et al	20	2025	Hong Kong	Evaluate peer-facilitated recovery self-management	Multicentre RCT; 198 adults with first-episode psychosis	QPR, SLOF, PANSS, C-SPSI-R:S and CSQ-8	Peer-RESIM improved recovery, functioning, problem solving, symptoms and satisfaction	Peer-facilitated recovery care can produce sustained benefits
Hang et al	21	2026	China	Evaluate CBT-based AI conversational agents	Systematic review/meta-analysis; 15 RCTs, 1,737 participants	Depression/anxiety outcome scales extracted from RCTs	CBT-based AI conversational agents showed beneficial effects across selected mental health outcomes	AI conversational interventions show promise but require careful clinical integration

The literature also identifies dropout as an important limitation. Digital interventions delivered during psychotherapy waiting periods showed some symptom improvement, but many studies did not demonstrate clear superiority over waiting or self-help controls, and adherence was problematic.¹⁹ Therefore, community mental health nursing can provide the human component necessary to transform a passive digital platform into a guided intervention.

AI FOR SCREENING, MONITORING, AND PREDICTION

AI represents one of the most rapidly developing areas of mental health research. Cruz-Gonzalez et al identified 85 studies examining AI applications in diagnosis, monitoring, and intervention.⁸ Diagnostic applications commonly involved machine-learning algorithms such as support vector machines and random forests, while monitoring applications used machine learning to identify symptom trajectories or risk patterns. Conversational agents represented an increasingly important intervention category.⁸

For community mental health nursing, AI could potentially support risk stratification. Routine nursing assessments generate longitudinal information about sleep, appetite, mood, functioning, medication adherence, substance use, previous crises, social isolation, and service utilization. When appropriately governed, algorithms could help identify patterns associated with deterioration and prompt earlier clinical review.

Predictive analytics may also contribute to personalized care. Jacobson and Nemesure demonstrated the potential of AI-based prediction to identify individuals who may respond differently to digital interventions.¹⁸ Such approaches could eventually support stepped-care models in which individuals are directed toward self-management, nurse-guided intervention, specialist review, or urgent assessment according to clinical need.

However, predictive accuracy should not be confused with clinical usefulness. The 2026 scoping review of AI reviews found that much of the literature remains concentrated on depression and anxiety and highlighted inadequate external validation and methodological limitations.⁹ Underrepresentation of nurses is particularly important because implementation cannot be separated from workflow. An algorithm that performs well technically but generates excessive false alerts, lacks interpretability, or does not integrate into nursing documentation may have limited clinical value.

AI conversational agents are another emerging application. Klos et al evaluated an AI-based chatbot in university students with anxiety and depression, demonstrating feasibility and potential therapeutic benefit.¹⁶ More recent evidence is becoming stronger: a 2026 systematic review and meta-analysis identified 15 randomized controlled

trials involving 1,737 participants evaluating CBT-based AI conversational agents.²¹ This suggests growing evidence for AI-supported psychological interventions, although the findings should not be interpreted as evidence that conversational AI can independently manage complex psychiatric illness.

EARLY INTERVENTION AND PROACTIVE COMMUNITY MONITORING

Early intervention provides an important bridge between prevention and treatment. Community mental health nurses frequently encounter individuals before formal psychiatric referral, making them strategically positioned to identify early changes in mental health. The early-intervention psychosis literature demonstrates the importance of accessible referral systems, multidisciplinary teams, workforce training, leadership, and coordination between services.¹⁰

Digital tools can strengthen this early-intervention role. Mobile symptom monitoring, electronic screening tools, teleconsultation, and automated reminders can facilitate repeated assessment rather than relying exclusively on episodic clinic encounters. A nurse could review symptom trajectories remotely and determine whether an individual requires routine follow-up, enhanced monitoring, medication review, psychosocial intervention, or specialist referral.

The potential value is especially high for young people, who may be reluctant to attend traditional mental health services because of stigma, transportation barriers, cost, or concerns about disclosure. Digital platforms can create additional points of contact, although they should not become the sole route into care.

Early intervention should also include prevention of relapse. For individuals with established severe mental illness, nurses can monitor warning signs and develop collaborative crisis and relapse-prevention plans. AI may eventually assist in identifying changes across multiple data streams, but the final clinical decision should remain with appropriately trained professionals.

RECOVERY-ORIENTED NURSING AND PEER SUPPORT

Technology alone cannot deliver recovery-oriented mental health care. Recovery is fundamentally concerned with meaning, identity, hope, autonomy, social participation, relationships, and personally defined goals. WHO community mental health guidance explicitly emphasizes person-centred, rights-based, and recovery-focused services.³

Evidence concerning recovery-oriented community services supports a shift from professionally defined outcomes toward outcomes that matter to service users.⁴ Mental health nurses can facilitate this approach through

collaborative goal setting, shared decision-making, strengths-based assessment, self-management education, medication support, family involvement, and linkage with housing, education, employment, and social services.

An integrative review focusing specifically on recovery-oriented nursing for people with schizophrenia emphasized the important position of mental health nurses while identifying challenges associated with professional role clarity and implementation.⁵ This suggests that recovery-oriented nursing requires more than adding the word “recovery” to existing clinical services. It requires changes in communication, documentation, outcome measurement, staff education, and organizational culture.

Peer support further strengthens this model. The 2025 randomized controlled trial by Chien et al included 198 adults with first-episode psychosis recruited from four Integrated Community Centres for Mental Wellness in Hong Kong.²⁰ Participants receiving peer-facilitated recovery-focused self-illness management demonstrated improvements in recovery, functioning, problem-solving ability, psychotic symptoms, rehospitalization-related outcomes, and satisfaction.²⁰ This provides particularly relevant evidence for community mental health nursing because peer support and professional nursing can be complementary rather than competing models.

DIGITAL PEER SUPPORT AND COMMUNITY PARTICIPATION

Online peer-support platforms can extend recovery-oriented care beyond clinical encounters. Morriss et al evaluated a direct-to-public peer-support intervention for depression and anxiety and demonstrated the feasibility of online community-based self-management support, although engagement challenges remained.¹⁷ Online peer communities may reduce isolation and allow individuals to exchange practical experiences, coping strategies, and encouragement.

However, peer-support platforms also create risks involving misinformation, confidentiality, cyberbullying, crisis disclosures, and inappropriate advice. Community nurses can potentially contribute by providing digital health education, identifying high-risk content, facilitating escalation pathways, and helping users distinguish peer experience from professional clinical advice.

This creates a new nursing role: digital therapeutic navigation. Nurses can help patients determine which digital resources are credible, evidence-based, culturally appropriate, accessible, and clinically suitable.

NURSING-LED INTERVENTIONS AND THE EVIDENCE GAP

Despite the growing literature on digital mental health and AI, nursing-specific evidence remains comparatively limited. Dickens et al reviewed 51 randomized controlled

trials involving 11,266 participants and found substantial heterogeneity in mental health nurse-delivered interventions.¹³ Although some outcomes showed significant benefits, the authors concluded that the evidence base remains insufficiently robust and that many trials have methodological limitations.¹³

The emerging AI literature shows an even larger professional gap. Abu-Mahfouz et al reported that nurses and allied professionals remain underrepresented in AI mental health research.⁹ This is important because nurses will likely be among the professionals responsible for implementing AI-enabled systems at the point of care.

Future research should therefore move beyond evaluating whether an AI system is technically accurate. Studies should examine whether AI-supported nursing workflows improve clinical outcomes, reduce missed deterioration, improve access, increase continuity, reduce workload, or enhance recovery. Implementation studies should also measure patient trust, nurse confidence, alert burden, equity, usability, and cost-effectiveness.

EQUITY, PRIVACY AND ETHICAL GOVERNANCE

Digital transformation may reduce inequity, but it can also reproduce or intensify existing disparities. People with limited digital literacy, unstable internet access, disability, low socioeconomic status, language barriers, or limited technological access may be excluded from digital services. Therefore, community mental health nursing must retain digital inclusion as a clinical responsibility.

AI creates additional ethical challenges. WHO guidance emphasizes that AI should protect autonomy, promote human well-being, ensure transparency, foster responsibility, support inclusiveness and equity, and remain understandable and safe.¹² The emergence of large multimodal models has increased the importance of these principles because such systems can process multiple forms of information and generate highly persuasive outputs.²²

For community mental health nurses, ethical AI implementation means maintaining human oversight, verifying AI-generated recommendations, explaining technology to patients, obtaining appropriate consent, protecting confidentiality, documenting clinical decisions, and recognizing potential algorithmic bias. AI should support nursing judgement rather than replace it.

DISCUSSION

The findings of this narrative review indicate that community mental health nursing is moving toward a hybrid, digitally enabled, predictive, preventive, and recovery-oriented model. The most important implication is not that technology will replace conventional nursing, but that the professional role of the community mental health nurse is likely to expand. The nurse of the emerging

digital mental health system will increasingly combine therapeutic communication and psychosocial care with digital monitoring, technology navigation, early-warning assessment, interdisciplinary coordination, and recovery facilitation.

Digital health provides the infrastructure for this transformation. Telepsychiatry can improve access and continuity, while mobile and web-based interventions can extend care between clinical encounters. Evidence suggests that telepsychiatry can produce outcomes comparable with face-to-face treatment for several psychiatric conditions.⁶ However, digital care is not automatically equivalent to high-quality care. Engagement, dropout, digital literacy, privacy, and accessibility remain important challenges.^{15,19} The community mental health nurse can address these limitations by maintaining therapeutic contact and providing individualized guidance.

The integration of AI offers an additional opportunity. AI may assist with screening, risk prediction, symptom monitoring, documentation, treatment matching, and conversational interventions.^{8,9,21} For community nursing, predictive systems could potentially identify individuals whose symptoms or functioning are deteriorating before a crisis occurs. This could shift services from reactive crisis management toward proactive intervention. Nevertheless, the current evidence remains insufficient to support unrestricted clinical autonomy for AI. Most research remains concentrated in selected diagnostic categories, and external validation and real-world implementation remain limited.⁹

The review also reinforces the central importance of early intervention. Early-intervention psychosis services demonstrate how timely identification, coordinated multidisciplinary care, and structured follow-up can transform the trajectory of serious mental illness.¹⁰ Community nurses can contribute to this process through repeated contact, family education, screening, medication monitoring, psychosocial assessment, and referral. Digital technologies may strengthen these functions by allowing more frequent and less burdensome monitoring.

Recovery-oriented practice provides the necessary human and ethical foundation for technological transformation. Without recovery orientation, digital mental health could become overly focused on symptom scores, risk algorithms, medication adherence, and service utilization. Recovery-oriented nursing instead emphasizes personal goals, autonomy, identity, empowerment, social functioning, and meaningful participation.^{3,5} The positive findings from the Peer-RESIM trial further demonstrate the value of combining structured recovery interventions with peer involvement.²⁰

An important tension therefore emerges between prediction and personhood. AI systems tend to classify risk and predict outcomes, whereas recovery-oriented nursing

seeks to understand individual meaning and preferences. These approaches should not be viewed as contradictory. Predictive analytics can identify when additional attention may be required, while nurses can determine what kind of intervention is appropriate and meaningful to the individual. The optimal model is therefore not “AI versus nursing” but AI-supported nursing with human accountability.

Another major issue is the evidence gap surrounding nurses. Although nurses are one of the largest professional groups within mental health services, nursing-specific trials and AI implementation research remain comparatively limited.^{9,13} This creates a risk that technologies will be designed without adequate consideration of nursing workflows. Future digital mental health research should therefore involve nurses from the design stage rather than only as end users.

Implementation science will also be important. Successful digital transformation requires more than purchasing software. Organizations need appropriate infrastructure, interoperability, cybersecurity, staff training, clinical governance, escalation protocols, digital-literacy assessment, and mechanisms for monitoring unintended consequences. Nurses should participate in technology selection, implementation planning, evaluation, and quality improvement.

The ethical dimension is equally important. Mental health information is particularly sensitive, and AI systems may process highly personal information involving emotions, relationships, behaviour, substance use, trauma, and suicidal thinking. WHO emphasizes that AI implementation must be grounded in human rights and ethical governance.^{12,22} Community nurses can act as patient advocates by ensuring informed consent, privacy protection, transparency, and appropriate human review.

The emerging evidence also suggests that future community mental health services should adopt a stepped digital-human care model. At the lowest level, individuals with mild symptoms may receive psychoeducation, digital self-help, and preventive interventions. Individuals requiring additional support could receive nurse-guided digital interventions and teleconsultations. Those demonstrating deterioration could receive intensified nurse monitoring and multidisciplinary review. Individuals with severe risk could be rapidly escalated to specialist or emergency services. AI could assist with identifying patterns across these levels, but escalation decisions should remain clinically accountable.

Overall, the future of community mental health nursing should therefore be understood as technology-enhanced relational care. The therapeutic relationship remains the core intervention, while digital health expands reach, AI supports clinical intelligence, early intervention reduces delay, and recovery-oriented practice preserves autonomy and meaning. The strongest future model will combine

these elements rather than allowing any single component to dominate.

Future directions

Future research should prioritize nurse-led, real-world evaluation of AI-enabled and digital community mental health interventions across diverse populations and resource settings. Longitudinal studies should examine clinical outcomes, recovery, engagement, cost-effectiveness, safety, and continuity of care. Greater attention is needed to algorithmic bias, privacy, digital exclusion, explainability, and patient autonomy. Future models should integrate AI-supported risk prediction with telehealth, peer support, and recovery-oriented nursing. Interdisciplinary co-design involving nurses, service users, caregivers, technologists, and policymakers will be essential for equitable and sustainable implementation.

CONCLUSION

Community mental health nursing is entering a period of substantial transformation. Digital health, telepsychiatry, mobile interventions, AI-supported prediction, conversational agents, early-intervention pathways, and peer-support models are expanding the possibilities for community-based mental health care. Current evidence suggests meaningful potential for improving access, monitoring, early identification, symptom management, recovery, and continuity, although important limitations remain regarding engagement, external validation, implementation, equity, and ethical governance. The future role of the community mental health nurse should consequently evolve from a predominantly service-delivery role toward that of a digitally enabled clinical coordinator, recovery facilitator, early-intervention practitioner, technology navigator, and patient advocate. AI should augment rather than replace professional judgement, and digital interventions should complement rather than displace therapeutic relationships. A sustainable model of community mental health care will be one in which technology increases the reach and responsiveness of services while nursing preserves the human elements of compassion, autonomy, dignity, advocacy, and recovery.

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