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## Integration Telemental Health to Reach Out Patients at Community Mental Health Services: A Systematic Review



<sup>CA</sup>Rian Priambodo<sup>1</sup>, Rizki Fitriyarsari<sup>1</sup>, Rr Dian Tristiana<sup>1</sup>, Firnanda Erindia<sup>1</sup>, Wimar Anugrah Romadhon<sup>2</sup>

<sup>1</sup>Nursing Department, Airlangga University, Indonesia

<sup>2</sup>Nursing Department, Stikes Patria Husada Blitar, Indonesia

<sup>CA</sup>Correspondent Author

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### Abstract

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Low- and middle-income countries (LMICs) need to digitize mental health services to address disparities and improve access to healthcare. This study systematically reviewed the digitalization of integration mental health services that can reach interactions between service providers and recipients with media such as telemental health and mobile health. A literature search was conducted in March 2023. Randomized controlled trial (RCT) data were used from available studies. RCT data sources were obtained from internationally reputable journal articles with the theme of telehealth. The literature used was obtained from the databases Scopus, Web of Science, and PubMed. Integration digitalized mental healthcare system under the auspices of the Ministry of Health that reach-nationally, official psychiatrists and other professional mental healthcare that provides mental healthcare support to areas lacking specialists consisting crisis and emergency, stable conditions, as well as the process of counseling and follow-up therapy with telemental health and mobile health media. Telemental health plays a major role in mental health services and modality therapy that can be accessed effectively and efficiently, especially for mental patients in remote areas who experience barriers to attending in person.

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✉Correspondence Address:

Airlangga University, Surabaya – East Java, Indonesia

Email: [rian.priambodo-2022@fkp.unair.ac.id](mailto:rian.priambodo-2022@fkp.unair.ac.id)

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## INTRODUCTION

Low- and middle-income countries (LMCs) need to digitize mental health services to address disparities and improve access to care ([De Sousa et al., 2020](#)). Access to technology capacity and infrastructure has disparities between regions in each country, this needs to be addressed for the implementation and development of telemental health ([Jannati et al., 2021](#)). The use of telemental health and mobile health is lacking. Nearly 85% of providers spend more than a quarter of their working week providing mental health care to patients; only about 25% spend more than a quarter of this time providing telemental health care. A combination of face-to-face sessions and telemedicine (44.1%) or only using telemedicine when necessary (46.9%) was reported by providers. Only half (50.6%) of providers reported health insurance company bills for telemental health visits ([Bunnell et al., 2020](#)). More than half of community telemental health care providers identified seeing patients wherever they were (72.3%) and reaching out to patients who were not receiving care (67.2%) as benefits of telemedicine. More than half of providers reported barriers related to technology issues (65.5%), while fewer (29.4%) identified barriers to patient satisfaction ([Bunnell et al., 2020](#)). More than half of providers choose to use telemedicine because it complies with the *Health Insurance Portability and Accountability Act* (HIPAA) (88.7%) and is cheaper than other solutions (56.5%). The most important features include HIPAA compliance/security (81.4%), free/low cost (67.2%), and ease of use by patients (62.7%) ([Bunnell et al., 2020](#)).

The reasons for dropping out of the patient in mental health service are unavailability of caregivers, distance from the hospital, and treatment without adjunctive pharmacotherapy ([Elugbadebo et al., 2023](#)). For those unable to reach mental health professionals, consultations will take place over the phone, telepsychiatry as a modality has not gained popularity and encouragement. Psychiatric assessments and mental status checks are best-done face-to-face, video calls may not be enough, always for the same. Many institutions (private and government) in LMIC have started telepsychiatry services that offer free mental health services during the COVID-19 pandemic. Although services are available, there is no strict regulatory authority to monitor the quality of these services and whether ethical standards are maintained. It is better if the professionals offering telepsychiatry

services are well-qualified and trained to do the same ([De Sousa et al., 2020](#)).

Most mental health service users in people with serious mental problems who are already clinically stable use mobile phones to receive mental health treatment services and report no barriers to cell phone use for this purpose. Reminders about medications and appointments as well as emergency helplines are the most sought-after services ([Sreejith & Menon, 2019](#)). The introduction of evidence-based disease management interventions, either through mHealth can reduce individual needs for other services. Different service models can utilize mHealth resources differently, with some serving as standalone device-delivered resources and others as adjunct care in blended care contexts. For people struggling with treatment engagement, mHealth may also be useful in the augmentation and facilitation of care (person-delivered care) ([Ben-Zeev et al., 2019](#)).

Telemedicine platforms can also play a role in providing reassurance to patients and providers by demonstrating whether or not the features are evidence-based and have undergone user-centric design testing. Intervening system-level factors related to the reception of telemedicine requires a strategic approach. One approach includes the integration of telemedicine with health information technology programs, including electronic health records (EHRs), which have become integral to coordinating care across healthcare delivery systems. Healthcare providers can become advocates in this area by understanding what types of integrations are best and feasible for their practice. Thus, further strategies are needed to understand differences in their integration across geographic areas where healthcare resources are scarce, as well as the personal and professional demographics (i.e., medical specialties and sub-specialties) of telemental health providers ([Bunnell et al., 2020](#)). The perceived benefits of telemental health use and the desired need to improve the workflow of *mental health* services are associated with intentions for its more frequent use in the future. Workflow improvements require assistance to coordinate with health insurance reimbursement, facilitate successful telemedicine practices, and integrate telemedicine programs with existing health information technology solutions ([Bunnell et al., 2020](#)). Telemental health is almost suitable for various mental health conditions, especially for

people living in remote communities ([Shang et al., 2021](#)).

**METHODS**

**Search strategies**

Systematic review design was used in this research, a literature search has been conducted in March 2023. Joanna Briggs Institute Standards were used to find the appropriate PRISMA classes and checklists. Search for keywords containing Medical Subject Headings (MeSH) terms. Focus

questions using PICOT criteria in [table 1](#). RCT data sources are obtained in the form of journal articles of international reputation with predetermined themes. The literature used was obtained from the databases Scopus, Web of Science, and PubMed. The keyword search used to search for the article is Mobile health OR m-health OR e-health AND telepsychiatry OR telemedicine AND mental health OR psychiatric OR *psychiatry AND mental health service\* OR mental healthcare OR psychiatric service\* Filters: Clinical Trial, from 2019 - 2024.*

**Table 1.** PICOT questions

Population	individuals with mental health problems
Intervention	Conducting technologies (m-health and telehealth) in mental health services
Comparison	There is no comparison
Outcome	effective and efficient mental health interventions using technology to reach out patients at community mental health services
Time	There is no time criteria

**Selection criteria**

The inclusion of the article is telemental health and mobile health, original research, the subjects of the study are staff and patients, and location at mental health area services (clinic and community).

**Data extraction**

From the eight studies chosen, we extracted the types of research, research subjects, and research data sources. Research subjects in three of these studies could be self-services and five subjects are staff-services. In addition, we extracted the results of articles that discussed the breakdown of the integration of telemental health and mobile health service areas. Discussion of differences in

research results requires consideration from the author.

**RESULT**

**Selection of Studies**

Based on results of the literature search, 266 articles were obtained that matched keywords with detailed articles from the Scopus database (n = 76), Web of Science (n = 146), and PubMed (n = 44). Results 266 articles were found, duplication of articles was checked and 16 articles remained. Based on the feasibility screening conducted against inclusion and exclusion criteria, 9 articles were found that can be used in this review. The results of the selection of study articles can be illustrated in the following PRISMA [Figure 1](#):

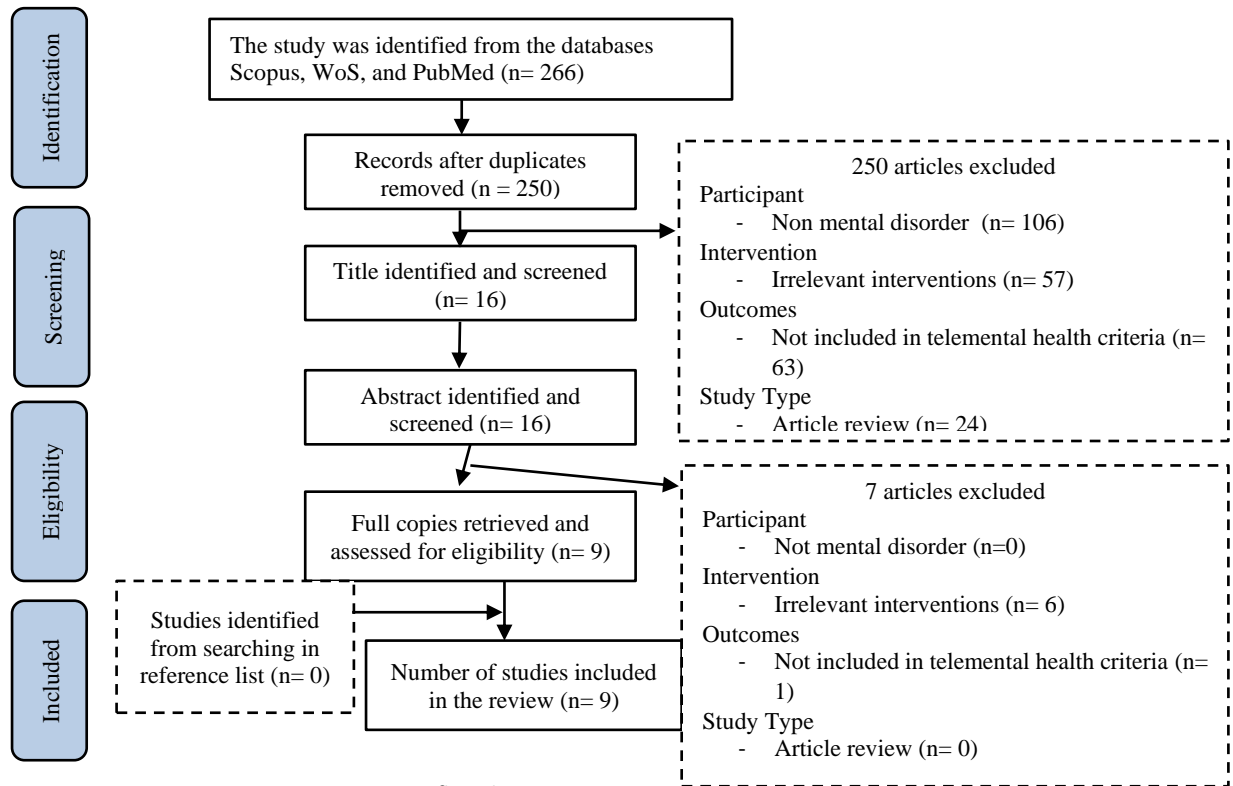


Figure 1. PRISMA flow diagram

Telemental health and mobile health were arranged to be integrated for distribute mental health services evenly. From 8 papers, area of services plotted to emergency, clinic, transition clinic-communities, and community services. Platforms use EHR systems, smartphones, and mobile phones.

Various mental health problems can be treated with a variety of health services and modality therapy that covers all areas. Health

services coverage counseling, medication adherence, and emergencies. Cognitive behavioral therapy and gain positive mental health as modalities therapy.

The patient in this case can run mental health applications independently or with assistance. Duration of intervention from shortest to longest (1 month - 2 years), special cases like emergencies was 24 hours /7 days, more substances in [Table 1](#).

Table 2: Characteristics of included study

No	Study and Author	Aims	Modalities	Service type	Coverage area	Study design	Staff	Intervention duration	Result
1	A smartph one intervention for people with serious mental illness: Fully remote randomized controlled trial of CORE	Conduct a fully remote randomized waitlist-controlled trial of the CORE App	Smartphone	Giving daily tasks to challenge dysfunctional thoughts	Community	fully remote randomized controlled crossover waitlist trial design	Self-management services	60 days	Bipolar disorder (35.2%), major depressive disorder (43.2%), schizoaffective disorder (21.6%). Self-esteem and recovery improved, disability and severity symptoms of psychiatric reduced.

No	Study and Author	Aims	Modalities	Service type	Coverage area	Study design	Staff	Intervention duration	Result
2	<a href="#">(Ben-Zeev et al., 2021)</a> Evaluating Emergency Department Utilization for Mobile Mental Health Patients: A Correlational Retrospective	Evaluating reduces emergency department service after using mobile mental health services (MMHC)	Telemental health (HEALTHe LINK)	Providing counseling and medication management at the patient's home.	Emergency department clinic - community	Correlational retrospective	Board-certified psychiatric mental health nurse practitioners (2), registered nurses (2), counselors/clinical Social workers (5).	8 months	Major depressive disorder (29%), Mood disorder (12.6%) Schizophrenia (28.6%) Schizoaffective (6.5%) posttraumatic stress disorder (10.3%), and anxiety (13%). Significantly reduces ED visits after admission to the MMHC
3	<a href="#">(Weissinger et al., 2021)</a> Development and Initial Testing of a mHealth Transitions of Care Intervention for Adults with Schizophrenia-Spectrum Disorders Immediately Following a Psychiatric Hospitalization	Developed and examined the initial feasibility, acceptability, and clinical effects of a mHealth transition of care intervention	smartphone	Assessments and management coping, substance Use symptoms, treatment adherence, behavioral activation, and quality of life.	Clinic - Community	Randomized controlled trial	Self-management services	1 month	Schizophrenia (60.0%), schizoaffective disorder (Bipolar (30.0%), schizoaffective disorder (Depressive) (10.0%). Reduced dysfunctional coping and psychiatric symptoms.
4	<a href="#">(Moitra et al., 2021)</a> Smartphone-enhanced symptom management in psychosis: Open, randomi	To assess (i) acceptability of continuous monitoring of serious mental illness; (ii) active self-monitoring	Smartphone	Active symptom monitoring and feedback for patient self-management. Doing early intervention if alert presents.	Clinic	Randomized controlled trial	200-400 severe mental illness patients handled by 20-30 care coordinators.	3 months	Schizophrenia/sza ff/szform (78%), bipolar disorder (16%), major depression and, psychotic (6%).

No	Study and Author	Aims	Modalities	Service type	Coverage area	Study design	Staff	Intervention duration	Result
5	zed controlled trial (Lewis et al., 2020) A mobile health intervention for mental health promotion among university students: Randomized controlled trial (Bendtse n et al., 2020)	of positive psychotic symptoms; and (iii) detecting early warning signs of relapse To assess the mHealth intervention on positive mental health, depression, and anxiety symptomology among university students	Smartphone	Fully automated mHealth positive Psychology (well-being, brief tips, validated self-help exercises, self-monitoring, and personalized feedback)	Community	Randomized controlled trial	Self-management services	10 weeks	Improving positive mental health.
6	Coached mobile app platform for the treatment of depression and anxiety among primary care patients: A randomized clinical trial (Graham et al., 2020)	To assess mobile intervention for addressing anxiety and depression	Smartphone	Provide user experience by supporting access to clinically focused apps, administering a weekly symptom assessment and library of psychoeducational material.	Clinic-community	Randomized controlled trial	assigned coach	8 weeks	83.6% depression and 89.7% anxiety. This mobile intervention app was effective for depression and anxiety among primary care patients
7	Simple Mobile technology health management tool for people with severe mental illness: a randomized controlled	Technology health management tool for severe mental illness in community care, assessed potential clinical benefit, acceptability, and feasibility.	Phone (Short Message Services)	Medication/Wellbeing Reminders, Wellbeing Indicator, and Request Support Function.	Community	Mixed method	Community mental health teams.	6 months	Patients engaged well and benefited from SMS reminders and from monitoring their well-being scores. However quantitative analysis of outcomes did not identify significant changes between groups.

No	Study and Author	Aims	Modalities	Service type	Coverage area	Study design	Staff	Intervention duration	Result
	feasibility trial ( <a href="#">Röhricht et al., 2021</a> )								
8	Integrating Telepsychiatric Services into the Conventional Systems for Psychiatric Support to Health Care Workers and Their Children during COVID-19 Pandemics: Results from A National Experience ( <a href="#">Dursun et al., 2021</a> )	Ensure the effectiveness combination of telehealth applications and local psychosocial support teams.	Telemental health, Smartphone	Mental health support for individual and their children. Take current localization for local team emergency help.	Clinic-community	Quantitative	Healthcare workers, psychiatrists, system operators.	24 hours/7 days	Telepsychiatry may be useful in public health emergencies
9	Mobile Phone Intervention to Reduce Dropout from Treatment at An Outpatient Mental Health Service for Older People in Nigeria ( <a href="#">Elugba debo et al., 2023</a> )	Mobile phone reminder to reduce patient dropout from an outpatient mental health service	Mobile phone	contact patients who are not present for the examination using a mobile phone. reminders are addressed to the patient, primary caregiver, or someone close to them	Clinic-community	Quasi - experimental design	Volunteering health staff who were either nurses or clinical psychologists	2 years	Dropout rates showed that decreasing trend pre-intervention (71.1%) and intervention (36.3%)

## DISCUSSION

Telemental health integration must be connected in multiple stages to reach out patients. The stages are carried out from the center, clinic, clinic-community, and community areas.

### Telemental health as support and equity

A telemental health system developed and accounted by the National Ministry of Health can reach the needs of verified expert support to areas in need. *The Ruh Sagligi Destek Sistemi-Mental Health Support System* application can be used by verified health workers who have official access to the system. The system combines a telehealth app with services from a local psychosocial intervention team ([Dursun et al., 2021](#)). The app has a simple menu that uses 2 options, for healthcare workers and their children. After the option is chosen, the system connects help seekers and health workers to assist. The app can also show the localization of the current user allowing operators and psychiatrists to report emergencies to local units ([Dursun et al., 2021](#)).

### Telemental health in clinical mental health services

Mobile Mental Health Clinic (MMHC) is an app based in clinics to reduce conventional visits at mental health clinics, systems encourage counseling and medication management services that provided at patient's homes. Counseling is provided by licensed mental health physicians to guide treatment modalities such as dialectical behavioral and cognitive behavioral therapy ([Weissinger et al., 2021](#)). The initial assessment was used to select patients suitable for MMHC criteria, criteria for admission to the MMHC include medical, financial, and psychiatric barriers to attending outpatient care ([Weissinger et al., 2021](#)).

### Telemental health as a Transition of Inpatient to Outpatient Services

An App based on cognitive behavioral therapy for psychosis, Mobile After-Care Support (MACS). The apps can monitor patient's symptoms, medication adherence, and coping skills to manage their mental illness ([Moitra et al., 2021](#)). The sessions begin with a brief assessment of coping, symptoms, substance use, quality of life, behavioral activation, and medication adherence. Each session is designed to take 5-10 minutes to complete.

Summarized MACS data sent to the participant's outpatient providers ([Moitra et al., 2021](#)).

The ClinTouch, app integrated with Electronic Health Record (EHR). This app focuses on active symptom monitoring that provides feedback for patient's self-management symptoms. An early warning sign is sent to coordinators if the score is beyond the threshold, then forcing early intervention. The branching items include positive psychotic symptoms, anxiety, and mood as validated against the PANSS scale ([Lewis et al., 2020](#)).

IntelliCare provides a library of psychoeducational materials and providing weekly symptom assessments. Patients have access to 5 clinically focused apps (Day-to-Day (focused on positive psychology lessons through psychoeducation and encouragement), Daily Feats (focused on goal setting), WorryKnotes (focusing on emotion regulation and exposure to anxiety), MyMantra (focused on self-affirmation and personal values), Thought Challenger (focused on cognitive restructuring/reframing) ([Graham et al., 2020](#); [Mohr et al., 2017](#)).

Telemental health plays a role in reducing patient dropout rates significantly by providing reminder facilities for appointments and follow-up if appointments have been missed ([Elugbadebo et al., 2023](#)).

### Telemental Health at Community Patient Care

The independence of patients with serious mental disorders is facilitated with the CORE application designed to improve the cognitive flexibility of individuals with various mental health problems through short daily training ([Ben-Zeev et al., 2021](#)). The intervention consists of short exercises such as daily games designed to generate changes in the relative activation of adaptive and maladaptive beliefs about self, others, and the world so that adaptive beliefs will be easier to pick up than maladaptive ones ([Ben-Zeev et al., 2021](#)). CORE users are trained to respond to multiple statements in a module sequence. The module begins with a brief psychoeducation about the target domain and how maladaptive beliefs can hinder recovery. Users learn to reach for self-statements that reflect more nuanced adaptive thoughts (e.g., belief in change, the importance of self-care, alternative explanations for threat perception, and treatment-seeking value) ([Ben-Zeev et al., 2021](#)).

Florence Simple Telehealth system, this intervention leverages the potential benefits of



'Florence' technology for service user treatment adherence and therapeutic engagement. The research team made a co-production with users of the service an innovative version of mental health for self-monitoring of relapse indicator and reminders of medication adherence. The technology tool is designed to allow service users to agree on three individually defined well-being indicators for their daily well-being score, to monitor those who work closely with healthcare professionals, and ultimately foster communication between service users and doctors beyond regular appointments ([Röhrich et al., 2021](#)).

Mobile mental health media with positive psychology multicomponent program-based interventions that are fully automated and aim to improve the positive mental health of users. The program includes information on well-being, brief tips, personalized feedback, validated self-help exercises, and self-monitoring. Text messages are sent to users throughout the program, with an average of one text message per day, and include text and links to interactive exercises and further reading. New themes are introduced every week, the themes used are important for positive mental health and include gratitude, positive emotions, positive relationships, personal strength, enjoyment, optimism, health behaviors, social environment, and goal setting ([Bendtsen et al., 2020](#)).

Providers of mental health care must apply telemental health coverage of facilitating conditions, usefulness in general, professional social influence, perceived ease of use, and telemedicine caseload ([Wilczewski et al., 2022](#)). Health professionals who need to be considered are aware of telemental health such as psychiatry, health professionals with a bachelor's degree, aged under 30 years, and have work experience of more than 5 years ([Adem et al., 2023](#)). Point of view mental health care providers to TMH were useful, reducing barriers and providing psychotherapeutic intervention. Rural communities greatly helped with many obstacles such as transportation limitations, economic barriers to attending clinics, and physical disabilities ([Lawson et al., 2022](#)).

Telemental health is used from another perspective, Clinicians use it to learn more about patients, meet their families, know more about patients' physical environment, and observe affect and mood ([Chaudhry et al., 2022](#)). Telemental health is useful in mental health services with shorter time in outpatient visits, emergency

departments, and readmissions ([Ricklan et al., 2024](#)). Local healthcare communities considered in-person visits by telemental health psychiatrists as opportunities to upgrade knowledge ([Shang et al., 2021](#)).

## CONCLUSION

Telemental health needs to be evenly integrated into mental health services. The national health minister can collaborate on EHR with applications on smartphones with one integrated system. Health services and modality therapy can be accessed effectively and efficiently, especially for mental patients in remote areas who experience barriers to attending in person.

## SUGGESTION

The researcher suggests using this article to illustration of the telemental health integrity system to be developed into telemental health products in each sector according to priority.

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## CONFLICT OF INTEREST

The authors declared no conflict of interest during the process until the publication of the study.

## AUTHORS CONTRIBUTION

All authors collaborated well in preparing this article. Discussions are carried out at each stage, such as the search method and determination of articles used, as well as the preparation of results and discussions according to trends and current issues.

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