Integrated care programmes for severe mental illnesses and comorbid physical health disorders: the EU-MIND umbrella review to inform future actions in Europe

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Summary

Background People with severe mental illness (SMI) represent up to 6% of the population and experience a high burden of physical comorbidity and premature mortality. Despite longstanding international calls to develop integrated care, the optimal organisational approaches for this population remain poorly defined, and health systems lack guidance on how to redesign care pathways. This review aimed to characterise the core components, reported impacts, and implementation challenges of existing integrated care programmes for individuals with SMI and physical health conditions.

Methods This umbrella review was reported in accordance with the PRISMA 2020 and PRIOR statements. PubMed, Scopus, PsycINFO, and Cochrane were initially searched from inception to February 2025, with an updated search performed on 5 May 2026, for review studies of integrated care programmes for people with SMI and comorbid physical conditions or social vulnerabilities. Methodological quality was appraised using AMSTAR-2, and the most mature programmes were synthesised narratively using the SELFIE framework for multimorbidity-oriented integrated care. The review was registered on OSF (https://osf.io/se2u4).

Findings Seventeen review studies met the inclusion criteria, identifying 20 distinct integrated care programmes. Although heterogeneous, these programmes most commonly integrated physical healthcare within mental health services, relied on case managers, and emphasised proactive, individualised, and continuous care. Coordination with social care services and involvement of service users in programme design was limited. Governance and financing arrangements were weak, the use of digital tools was scarce, and effects on physical health and social outcomes remained modest.

Interpretation Evidence on effective and scalable integrated care programmes for people with SMI and physical comorbidity remains limited. These findings inform the next phase of the European Mental and Physical Health Initiative for People with Severe Mental Disorders (EU-MIND), which will use a Delphi process with key stakeholders to guide the implementation of sustainable integrated care across diverse European health systems.

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Keywords: Severe mental illness; Physical health; Integrated care; Multimorbidity; SELFIE framework; Umbrella review

Research in context

Evidence before this study

People with severe mental illness (SMI) experience a markedly elevated burden of physical comorbidity and premature mortality. Although integrated care has long been proposed as a strategy to address fragmentation between mental and physical healthcare services, the organisational features of effective and scalable programmes remain unclear. We searched PubMed, Scopus, PsycINFO, and the Cochrane Library from database inception to 5 May 2026 for review-level evidence on integrated care programmes for individuals with SMI and co-occurring physical conditions or major social vulnerabilities. Search terms included combinations of "severe mental illness", "serious mental illness", "integrated care", "collaborative care", "coordinated care", and "multimorbidity". We included systematic reviews, scoping reviews, and meta-analyses restricted to seven predefined European languages. Existing reviews describe various integrated care approaches and report improvements in access to care and preventive services. However, evidence on physical health outcomes, governance, financing, and implementation processes, remains limited and inconsistently reported.

Added value of this study

This umbrella review provides a structured synthesis of the organisational components, reported impacts, and implementation challenges of integrated care programmes for people with SMI using the SELFIE framework for multimorbidity-oriented integrated care. By mapping these programmes across service delivery, governance, workforce, financing, technology, and research domains, we identify persistent system-level gaps that constrain scalability and sustainability. The review highlights the predominance of pilot-based initiatives and the limited evidence supporting improvements beyond care processes.

Implications of all the available evidence

Current evidence suggests that integrated care programmes can improve access to primary and preventive services for people with SMI, but their broader impact on physical health and social outcomes remains modest. Strengthening macro-level governance, sustainable financing mechanisms, digital infrastructure, and cross-sector coordination will be critical to translate promising pilot initiatives into scalable health system reforms. These findings inform the next phase of the EU-MIND initiative, which will engage stakeholders to develop consensus-based guidance for implementing sustainable integrated care across diverse European health systems.

Introduction

People with severe mental illness (SMI), including psychotic, bipolar, and major depressive disorders, represent up to 6% of the population and have a high burden of physical comorbidity, which accounts for most of their markedly reduced life expectancy.[1–3] Compared with the general population, individuals with SMI have nearly twice the odds of physical multimorbidity and face a substantial excess physical health burden in Europe.[4,5] They experience a 15- to 20-year reduction in life expectancy, primarily due to comorbid physical illnesses.[6] European population-level analyses have shown that all-cause mortality among people with SMI is approximately twice that of the general population, and that this gap has widened over time.[7–9] This excess mortality is increasingly considered a key indicator of health inequalities and of the quality and performance of health systems.[10,11]

Multiple mechanisms contribute to this gap, including adverse health behaviours, genetic vulnerability, metabolic and cardiovascular side effects of psychotropic medications, socioeconomic disadvantages and, critically, failures in the provision of adequate physical healthcare.[12–14] In most countries, mental and physical healthcare are funded, organised and delivered through separate systems, contributing to structural fragmentation and weak coordination across providers and sectors,[15] although similar integration challenges persist even in settings with more unified funding arrangements. People with SMI consequently make limited use of general medical and preventive services and are less likely to receive guideline-concordant physical healthcare than the general population.[2,3,16,17]

To address these challenges, integrated care programmes specifically designed for individuals with SMI are needed. Integrated care refers to coordinated approaches operating across funding, administrative, organisational, service delivery and clinical levels, designed to foster alignment and collaboration between the cure and care sectors, with the aim of improving outcomes, quality of life and system efficiency for people with complex needs.[18] The World Health Organization (WHO) defines integrated care as a people-centred approach aiming to deliver coordinated, continuous and comprehensive services that respond to the needs of individuals across different levels and

settings of care.[19] For people with SMI, this implies bringing together mental health, physical healthcare and, when needed, social care to improve health outcomes, enhance patient experience, and reduce healthcare costs.[20,21]

Despite ongoing efforts, few health systems have achieved sustained, scaled implementation of integrated care for people with SMI.[22] A substantial knowledge gap remains regarding which approaches are best suited to address their complex health needs. Existing systematic and scoping reviews of integrated care provide only partial guidance. Some do not focus specifically on the needs of people with SMI[23]; others are outdated and do not capture more recent innovations[22]; and some are restricted to specific care settings or comorbidities.[24] Furthermore, organisational components are often described in limited detail and using conceptual frameworks that do not fully reflect recent advances in multimorbidity research, including the shift toward person-centred, multimorbidity-oriented care promoted by international policy reports and clinical guidelines.[25] Finally, to our knowledge, none of the available reviews adopt an explicitly action-oriented perspective aimed at informing the design and implementation of best-practice programmes for people living with SMI.

In this context, the primary objective of this umbrella review was to identify the core components and reported impacts of the existing integrated care programmes for individuals with comorbid SMI and physical health conditions, and to highlight their main implementation challenges. Given the heterogeneity of these programmes and the lack of standardized organizational frameworks, an umbrella review methodology was selected to synthesise the findings of existing reviews and identify critical information gaps. This work constitutes an initial step of the *European Mental and Physical Health Initiative for People with Severe Mental Disorders* (EU-MIND), funded by the 2024 European Partnership on Transforming Health and Care Systems,[24] which aims to inform the development and implementation of integrated care programmes for people with SMI and physical comorbidity across six European countries (Denmark, Finland, France, Italy, Poland and Sweden).

Methods

This umbrella review was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) statement[26] (Table S1) and the Preferred Reporting Items for Overviews of Reviews (PRIOR) statement[27] (Table S2). The review was registered on the Open Science Framework (https://osf.io/se2u4). Subsequent methodological refinements and deviations from the protocol are documented in Table S3.

Eligibility criteria

Studies were eligible if they met the following criteria: (1) included participants with SMI or reported subgroup analyses for SMI population; (2) addressed at least one of the following: a co-occurring substance use disorder (dual diagnosis), a comorbid physical health condition, or a relevant social vulnerability (e.g., homelessness, veteran status); (3) evaluated any integrated care programme; (4) were a systematic review, scoping review, or meta-analysis; and (5) were published in English, Danish, Finnish, French, Italian, Polish, or Swedish. Reviews focusing exclusively on common mental disorders or not reporting any physical comorbidity or relevant social factor, were excluded. Eligible interventions comprised partially to fully integrated care programmes. Given the variability in how integration was reported in the literature, we adopted a broad search strategy encompassing the integration of services (including health and social care), collaborative and coordinated care, as well as chronic and patient-centred care, in line with previous research.[23] We focused on interventions targeting the organization and delivery of care; reviews of standalone health technologies as the primary intervention were not considered, while those incorporating technology as one component of integrated care remained eligible. Narrative and realist reviews were not included, although their reference lists were screened for additional eligible studies.

Search strategy and selection criteria

Relevant articles were identified through searches of PubMed, Scopus, PsycINFO and the Cochrane Library from inception to February 2025, with an updated search performed on 5 May 2026, using predefined keywords and MeSH terms adapted to each database (Table S4). Reference lists of relevant articles and Google Scholar were also consulted to identify grey literature.

The final search results were imported into the Rayyan research collaboration platform[28] for duplicate removal. Titles and abstracts were screened independently by two reviewers (MR, UI), followed by full-text assessment by a third reviewer (CG). Discrepancies were resolved through discussion with the co-authors.

Data extraction, quality assessment and charting

Data extraction and charting were carried out using a two-stage process. A standardized data extraction form was developed to systematically capture study characteristics and relevant findings from the included articles. In the first stage, a pilot extraction was performed on a subset of studies to ensure consistency across reviewers and to refine the charting form. In the second stage, the finalized form was used to extract information from each study, including study characteristics, integrated care components, outcomes, and evidence quality.

The quality of included reviews was assessed using the AMSTAR 2 (A Measurement Tool to Assess Systematic Reviews, version 2) instrument.[29] This tool evaluates methodological rigor across seven critical and nine non-critical domains, allowing for the classification of reviews into four overall quality ratings: high, moderate, low and critically low. It is worth noting that, AMSTAR-2 was developed for systematic reviews, and some AMSTAR-2 items did not apply uniformly across included review types, particularly scoping reviews. Items relating to meta-analysis (11, 12, 15) were rated 'No MA' where no quantitative synthesis was conducted. Consequently some 'Critically low' ratings may partly reflect limitations in tool applicability rather than methodological quality.

Data extraction and quality appraisal were conducted independently by multiple reviewers (UI, ETB, AT, AB, EC, TG), with disagreements resolved through discussion with two additional reviewers (MR and CG).

Collating, summarizing and reporting

To summarize the descriptive characteristics of the integrated care programmes, we reviewed all interventions reported in the included reviews, removed duplicates, classified programmes according to their main organizational features, and identified the programmes that were both fully described and frequently evaluated. Evidence was mapped in tabular form to highlight their core components, key outcomes and effectiveness.

A narrative synthesis was then conducted to describe the characteristics of these interventions and their impact. Where included reviews reported meta-analytic findings, these were summarised narratively rather than repooled, given the heterogeneity in programmes, populations, and outcomes. The core components of identified interventions were extracted into an analytical grid developed by our research team and structured around the Sustainable intEgrated care modeLs for multimorbidity: delivery, FInancing and performancE (SELFIE) conceptual framework,[21] a tool specifically designed to guide the development, implementation, description, and evaluation of integrated care programs for multimorbidity (Table S5). This framework was developed through a Horizon 2020 initiative funded by the EU, with successful applications across diverse healthcare settings.[30] SELFIE was selected over earlier integrated care frameworks because it was developed specifically for populations with multimorbidity and complex needs, with explicit attention to financing and to the three levels of integration (micro, meso, macro). At its core, it emphasizes the individuals with multimorbidity and their personal environment, while organizing integrated care concepts across the micro (patient–professional interactions), meso (organizations and communities), and macro levels (policy and system environments at local, regional, or national levels).[21] When descriptions in the reviews were insufficient to populate the SELFIE grid, primary research articles were consulted to complement the charting. In line with the SELFIE framework, the results are reported across the following domains: service delivery, leadership and governance, workforce, financing, technologies and medical products, and information and research.

Ethics

Ethics approval is not required for this umbrella review of published literature.

Role of the funding source

The funders had no involvement in study design, data collection, data analyses, data interpretation, or the writing of the report.

Results

An initial literature search identified 3421 records after duplicate removal, of which 142 remained after title and abstract screening. Among these, 125 articles were excluded for the following reasons: no reference to SMI (n = 81), no comorbid factor or social vulnerabilities (n = 11), not describing an integrated care approach (n = 20), wrong publication type (n = 6), duplicates (n = 4), or record not retrievable (n = 3). Ultimately, 17 review studies were included in the umbrella review (Fig. 1). An updated literature search was conducted on 5 May 2026 using the same eligibility criteria and screening procedures. Seven articles underwent full-text assessment, but all were excluded based on the pre-specified eligibility criteria (Table S6).

Of the 17 included reviews, 10 (58.8%) were published before 2018, and seven (41.2%) were published between 2018 and 2024 (Table 1); the 2018 split reflects the publication date of the most directly relevant prior review,[22] allowing this umbrella review to capture innovations and developments published thereafter. Ten reviews (58.8%) included participants with schizophrenia, 11 (64.7%) with major depressive disorder or severe depression, 8 (47.1%) with bipolar disorder, and 5 (29.4%) with schizoaffective disorder or other psychotic disorders. Six reviews (35.3%) did not specify the comorbidity types, while others reported cardiovascular problems (29.4%), multiple medical comorbidities (17.6%), general medical issues (17.6%), substance use disorder (17.6%), homelessness (11.8%), type 2 diabetes (5.9%), and traumatic brain injury (5.9%).

Quality appraisal using AMSTAR-2 (Table S7) identified two reviews (11.8%) as high quality, four (23.5%) as low quality, and 11 (64.7%) as critically low quality. Most reviews adequately described their research questions and study designs, with reasonable performance in duplicate screening (82.4%) and data extraction (82.4%). The most frequent limitation was

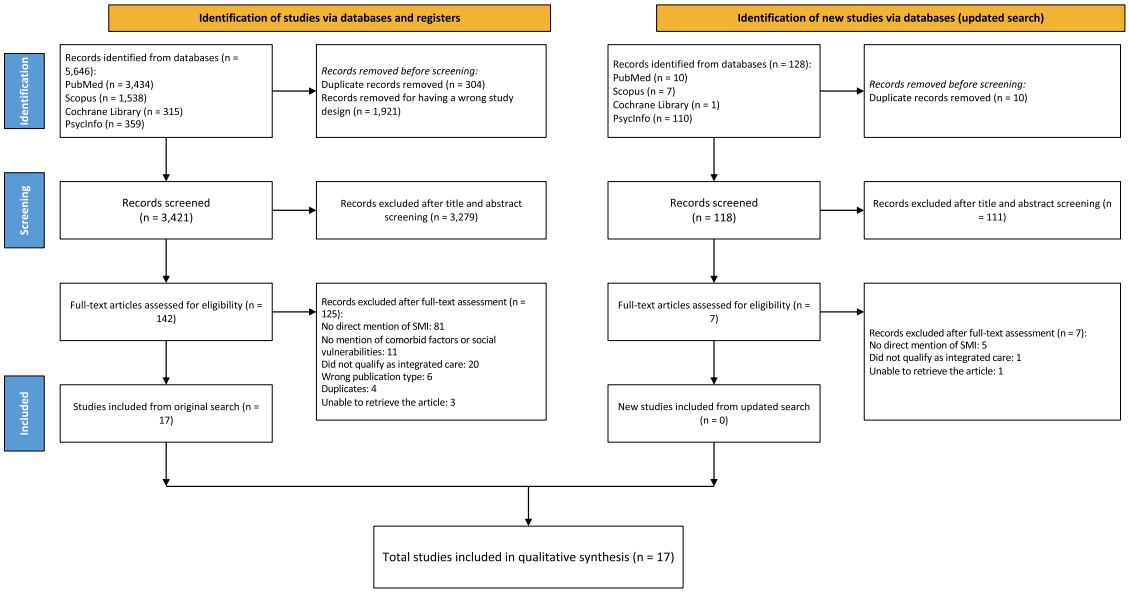

***Fig. 1:* Study profile.** Two-column PRISMA 2020 flow diagram showing the identification, screening, eligibility assessment, and inclusion of records for both the original search (database inception to February 2025) and the updated search (5 May 2026).

the lack of comprehensive documentation of excluded studies. Risk of bias assessment was conducted in 10 reviews (58.8%), though quality varied.

We identified 20 main types of integrated care programmes for people with SMI. Across these programmes, five core components emerged: (1) supporting self-management and enhancing patient information and education; (2) the use of care managers and individualized treatment plans; (3) the introduction of new professional roles and training; (4) the integration of physical healthcare within mental health settings; and (5) community-based intensive and outreach approaches, particularly targeting health-related social needs (Table S8). Although interventions were classified according to their predominant core components, most incorporated multiple dimensions and could therefore align with more than one lever.

Service delivery systems integrating physical healthcare within mental health services,[47,48] particularly in community-based outpatient settings,[49–54] were more frequently described than interventions within general primary care.[55] The degree of integration varied considerably, ranging from basic collaboration between providers working at distance[51] to fully co-located services with shared responsibilities.[50,56] Although most programmes were developed to promote person-centred care, service users were rarely involved in their design. Across programmes, strong emphasis was placed on proactive, individualized and continuous care, including regular monitoring, systematic case reviews, and support for self-management.[49,50,54,57–60] In contrast, involvement of social services and mobile or home-based delivery of care were limited, most often described in assertive community treatment models.[61] Polypharmacy and medication interactions were not systematically addressed, although some programmes incorporated medication adherence support.[49,62] Culturally responsive care approaches were rarely described.[59] Finally, macro-level dimensions, such as market regulation, cross-sector integration policies, service availability and access at regional or national levels, were largely overlooked, limiting the transferability of programme components across health system contexts.

Strong local clinical leadership emerged as a recurrent feature, with many programmes originating as bottom-up pilot initiatives led by clinicians or researchers.[48,49,51,60,63] However, the literature provided limited evidence of underlying theoretical frameworks, formal governance structures, a clear organizational vision, accountability mechanisms, or large-scale implementation. Information on macro-level governance, national strategies, or political commitment was scarce, underscoring challenges in embedding integrated care into long-term, system-wide practice and raising concerns about scalability and sustainability of such service delivery systems.

Integrated care programmes for people with SMI were characterized by a strong reliance on case managers, most often nurses, who coordinated and oversaw patient care.[49,50,58,60,64,65] Many programmes included a designated coordinator or a small core care team, typically bringing together multiple medical specialties and non-physician healthcare workers, with an emphasis on

Study (authors, date, title)	Design of the studies included in the review	Number of included studies focusing on SMI in the review	Country/ies of included studies	Addressed SMI	Focus on specific comorbidities (which ones?)?	Definition of integrated care used by the review	Physical health outcomes considered/Mental health outcomes considered	Quality (synthesis of the Amstar 2 appraisal)
Hove et al. (2023)[31] Integrated nursing care for people with combined mental health and substance use disorders.	Quantitative (11), qualitative (12), mixed methods (3)	7	UK (7), Australia (6), Finland (2), Belgium (1), France (1), Canada (2), Bulgaria (1), Greece (1), Italy (1), Poland (2), Scotland (2), Slovakia (1), Slovenia (1), Spain (2), Sweden (1), Netherlands (1), Denmark (1), Taiwan (1), Northern Ireland (1)	SCH, BD, Depression	Substance Use	Not indicated but refers to the WHO definition.	Three themes identified as significant: nurses' individual factors, educational & professional development factors, and organizational factors.	Critically low
Martens et al. (2021)[32] Organization of community mental health services for persons with a severe mental illness and comorbid somatic conditions: a systematic review on somatic outcomes and health related quality of life.	RCTs (11), Quasi-experimental (2), non-randomized interventional (1), randomized parallel group trial (1), controlled trial (1)	16	USA (10), Australia (1), Denmark (1), Netherlands (1), Spain (1), Thailand (1), UK (1)	SCH, MDD, BD, SAD	Comorbid somatic conditions	NA*	Biomarkers (HbA1C, cholesterol, blood pressure, blood glucose, BMI, Framingham Risk Score), primary care utilization, preventive services (screening, vaccinations), and cardiometabolic risk factors. Symptom severity (HAMD, PANSS, Quick Inventory for Depressive Symptomatology), quality of life (SF-12, SF-36, VR-12, WHOQoLBref), psychiatric hospitalization rates, and treatment adherence.	Low
Hussain & Seltz (2014)[33] Integrated models of care for medical inpatients with psychiatric disorders: a systematic review.	RCTs (2), interrupted time-series analysis (1), controlled before-and-after study (1)	2	Netherlands (2), USA (1), UK (1)	Mood disorders, Psychotic disorders	Cardiovascular, endocrine gastrointestinal, respiratory, neurologic, circulatory, CNS, and genitourinary disorders	Models of care where psychiatric and medical providers had joint responsibility for all patients within a given service, "medical-psychiatric units" and "joint care wards," both of which integrate psychiatrists, general medical physicians, and allied health staff into a single inpatient service	GAF score improvement, Geriatric depression scale, HoNOS65+, MMSE, Karnofsky score daily living and mobility improvement, length of stay, probability of being placed in a nursing home	Critically low
Whiteman et al. (2016)[34] Systematic review of integrated general medical and psychiatric self-management interventions for adults with serious mental illness.	RCTs (9), pre-post designs (6)	15	NA	MDD, BD, SCH, SAD	General medical comorbidity	Integrated general medical and psychiatric self-management interventions that target adults with serious mental illnesses and chronic general medical conditions	Self-management skills and behaviors, self-management attitudes, biological outcomes, service use, and functional status (over 70 outcomes)	Critically low

(Table 1 continues on next page)

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(Continued from previous page)								
Richardson et al. (2020)[35] A systematic scoping review of interventions to integrate physical and mental healthcare for people with serious mental illness and substance use disorders.	RCTs (14), prospective (5), pilot (3), cross-sectional (4), retrospective (1), quasi-experimental (1)	21	USA (23), Canada (1), UK (1)	SCH, MDD, BD	Substance use disorders, cardio-metabolic risk factors, long-term medical conditions, diabetes, HIV	Framework for Measuring Integrated Patient Care developed by Singer et al. (2011)	Health service utilization, physical health indicators (HbA1c levels, blood pressure, cholesterol, BMI), psychiatric symptom burden, psychiatrist assessments or patient medical notes, QoL (SF-16), engagement with self-management strategies, satisfaction with medical care or with the intervention, participation in routine health screening, linkage to specialist or primary care, quality of care as indicated by medical records, and healthcare and intervention costs	Critically low
Happell et al. (2015)[36] Scoping review of research in Australia on the co-occurrence of physical and serious mental illness and integrated care.	RCTs or controlled trial (7), original studies, literature reviews, consumer participation studies	182	Australia	SCH, BD, SAD	Cardiometabolic disorders, cardiovascular disease, respiratory disease, cancers, dental health problems, and infections.	Descriptions or evaluations of any programme, service model, or intervention aimed at addressing the physical health needs of people with SMI (i.e., health behaviour change, health education or promotion, improvement of screening and referral models, and peer-support programmes)	No physical or mental health outcomes evaluated, identified 12 gaps in literature.	Critically low
Lee et al. (2013)[37] What is needed to deliver collaborative care to address comorbidity more effectively for adults with a severe mental illness?	NA	NA	Australia	NA	No	Australian models of care that have involved cross-sector collaboration, with a particular focus on addressing the prominent comorbidities, which are often barriers to effective treatment of psychiatric symptoms and impair quality of life	Homelessness; substance addiction; physical ill-health; unemployment; and forensic issues	Critically low

(Table 1 continues on next page)

Study (authors, date, title)	Design of the studies included in the review	Number of included studies focusing on SMI in the review	Country/ies of included studies	Addressed SMI	Focus on specific comorbidities (which ones?)?	Definition of integrated care used by the review	Physical health outcomes considered/Mental health outcomes considered	Quality (synthesis of the Amstar 2 appraisal)
(Continued from previous page)								
Tuudah et al. (2022)[38] Non-pharmacological integrated interventions for adults targeting type 2 diabetes and mental health comorbidity: a mixed-methods systematic review.	Randomised controlled pilot study (1), RCTs (2), randomized pre-test (1), post-test control group design (1), prospective, uncontrolled, case-series pilot trial (1), qualitative studies (2)	7	USA	SCH, SAD, BD, or severe MDD	Type 2 diabetes	Integrated care is person-centred coordinated care that is provided in a holistic manner to address the whole person's needs. Integrated care contributes to the philosophy of the triple aim: improving user experience of care, improving clinical outcomes, and reducing healthcare costs	Primary outcomes: • Diabetes knowledge • Glycemic control • Diabetes self-efficacy • General health (e.g., weight, BMI) • Psychiatric illness self-management • Mental illness symptom severity • Quality of life Secondary outcomes: • Participant attendance • Adverse effects of intervention • Adverse events experienced	Low
Bradford et al. (2013)[39] An evidence synthesis of care models to improve general medical outcomes for individuals with serious mental illness: a systematic review.	RCTs	4	USA	SCH, SAD, BD	No	Interventions with a stated goal to improve general medical care or outcomes through an integrated model and either one of the following: 1. a system redesign that adds care providers to directly address or coordinate mental and general medical care; 2. Interventions that do not add providers but include at least 3 of the following: a) decision support, b) information systems, c) self-management support, d) enhanced communications between mental health providers and general medical providers	General medical outcomes, preventive services, chronic disease management, general functional status outcomes, disease-specific functional outcomes	Low
Hunt et al. (2019)[40] Psychosocial interventions for people with both severe mental illness and substance misuse. Cochrane Database of Systematic Reviews.	RCTs	41	USA (25), Australia (6), UK (5), Germany (2), Denmark (1), Ireland (1), Switzerland (1).	SZ, BD, MDD, other types of psychosis.	Substance misuse/abuse.	Treatment model where mental health and substance use treatments are delivered simultaneously by the same service, clinician, or team. It includes elements such as assertive outreach, comprehensive services (inpatient, day hospital, community-based care), long-term engagement, and specialized clinicians.	Physical: Substance use reduction, mortality rates, hospitalizations and emergency service use, medical engagement and preventive health screenings, housing stability and homelessness reduction. Mental: Psychiatric symptom severity, medication adherence, QoL improvements, relapse rates, retention in treatment, criminal justice involvement.	High

(Table 1 continues on next page)

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(Continued from previous page)								
Dieterich et al. (2017)[41] Intensive case management for severe mental illness.	RCTs	40	USA (25), UK (8), Sweden (2), Canada (1), Netherlands (1), Denmark (1), China (1), Australia (1)	SCH, SCH-like disorders, BD, Depression with psychotic features	No	ICM is a community based package of care that consists of management of the mental health problem and the rehabilitation and social support needs of the person concerned, over an indefinite period of time, by a team of people who have a fairly small group of clients (fewer than 20).	Primary outcomes: 1 Hospitalisation: mean number of days per month in hospital 2 Not remaining in contact with psychiatric services Secondary outcomes: Over 60 outcomes measuring service use, adverse effects, global state, social functioning, mental state, behavior, quality of life, satisfaction, and costs	High
Rodgers et al. (2018)[22] Integrated care to address the physical health needs of people with severe mental illness: a mapping review of the recent evidence on barriers, facilitators and evaluations.	systematic and non-systematic literature reviews, primary studies, book chapters, conference abstracts, dissertations, policy and guidance documents, feasibility studies, descriptive reports and programme specifications, empirical and descriptive publications, including evaluative studies; policy/guideline documents	45	USA (24), UK (12), Australia (5), Belgium (1), Spain (1), Canada (1), China (1)	SCH, schizotypal and delusional disorders; BD; severe depressive disorder with or without psychotic episodes	No	Integrated care incorporates both health and social care and identifies a number of structural and organizational arrangements at the heart of good integrated care for people with mental health problems, including information sharing systems, shared protocols, joint funding and commissioning, and co-location of services.	1) Information sharing systems 2) Shared protocols 3) Joint funding and commissioning 4) Co-location of services (e.g., services brought together for physical and practical ease of access) 5) Multidisciplinary teams 6) Liaison services (e.g., provision of shared expertise across service settings) 7) Navigators (e.g., named care co-ordinators) 8) Reduction of stigma 9) Research (e.g., to ascertain the best way of delivering and evaluating integrated care)	Critically low

(Table 1 continues on next page)

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Miller et al.(2013)[42] Collaborative chronic care models for mental health conditions: cumulative meta-analysis and metaregression to guide future research and implementation.	RCTs	43	USA	Depression, BD	NS*	CCM incorporates 6 elements: self-management support to help patients take a more active role in their care; clinical information systems, such as provider feedback and electronic registries; delivery system redesign to support prevention-oriented clinical care; decision support, such as the use of treatment guidelines or expert consultants; healthcare organization support by local leadership; and linkages to community resources.	Depression, mental QOL, or physical QOL outcomes	Low
Tranberg et al. (2024)[43] Interventions targeting patients with co-occurring severe mental illness and substance use (dual diagnosis) in general practice settings–a scoping review of the literature.	RCTs; observational study; Interventional study with follow-up, survey, implementation study	7	USA	Major Depression	Substance Use Disorder	(1) integrated care of mental disorders, substance use, and/or primary care, or (2) delivery of CBT	(1) mental health assessment, (2) substance and/or alcohol use assessment, (3) healthcare utilization or treatment engagement, and (4) implementation of the intervention.	Critically low
Lim et al. (2022)[44] Care management for serious mental illness: a systematic review and meta-analysis.	RCTs (14), quasi- and non-RCTs (1), prospective cohort studies (1), retrospective cohort studies (3), time-series analyses (5)	28	USA (10), Sweden (2), UK (1), Germany (2), Denmark (1), Hungary (1), Spain (4), Switzerland (1), Israel (2), India (1), Iran (1), South Africa (1), Canada (1)	SCH spectrum disorders, BD, unspecified serious mental illness	NS	An individual performing assessment, care planning, and coordination of care (including service referral) at least partly in the outpatient setting and a nonteam-based model of service.	Psychiatric symptoms, physical QOL, mental QOL, global QOL, patient satisfaction, healthcare costs, inpatient hospitalizations, inpatient days, emergency department visits	Low
Chan et al. (2022)[45] A systematic review on integrated care for traumatic brain injury, mental health, and substance use.	Controlled interventions (21) Case studies/series (17) Observational cohort/cross-sectional (11) Before-after no control groups (8) Qualitative (3) Case-control (1)	27	USA (21), Australia (3), China (1), Canada (1) India (1)	Depression	Traumatic brain injury	Health services that are managed and delivered so that people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease-management, rehabilitation and palliative care services, coordinated across the different levels and sites of care within and beyond the health sector, and according to their needs throughout the life course (WHO, 2016, p. 2).	The aim of this review was to summarize existing integrated TBI and MHSU care rather than evaluate the outcome of the integrated activities	Low

(Table 1 continues on next page)

Study (authors, date, title)	Design of the studies included in the review	Number of included studies focusing on SMI in the review	Country/ies of included studies	Addressed SMI	Focus on specific comorbidities (which ones?)?	Definition of integrated care used by the review	Physical health outcomes considered/Mental health outcomes considered	Quality (synthesis of the Amstar 2 appraisal)
(Continued from previous page)								
Paton et al. (2016)[46] Improving outcomes for people in mental health crisis: a rapid synthesis of the evidence for available models of care.	Review of reviews (1), systematic reviews (6), NICE guidelines (9), primary studies (15)	31	Multiple countries worldwide (exact number not reported)	Psychotic disorders, BD, severe depression	NA	Service models [e.g., EISs], pharmacological interventions (e.g., antidepressants for people with depression and antipsychotics for people with psychosis), individual-level interventions to prevent relapse of mental health conditions [e.g., CBT for people with psychosis, family intervention for people with psychosis, DBT for people with BPD] and strengths-based interventions to promote recovery (e.g., self-management and supported employment)	Improved access to services before crisis point, self-harm, violence, hospital admission, mental health outcomes, waiting times, reduction of use of force/restraint, service user experience, quality of life, employment and education	Low

Includes author and year, review design, country of first author, number of included primary studies, sample size, type of severe mental illness, comorbidities considered, type of integrated care intervention, reported outcomes, and AMSTAR-2 overall confidence rating. **Notes.** BD: bipolar disorder; BMI: body mass index; BPD: borderline personality disorder; CBT: cognitive behavioural therapy; CCM: Collaborative Chronic Care Model; DBT: dialectical behaviour therapy; EIS: early intervention service; GAF: Global Assessment of Functioning; HAMD: Hamilton Depression Rating Scale; HbA1c: glycated haemoglobin; HIV: human immunodeficiency virus; HoNOS65+: Health of the Nation Outcome Scales for adults aged 65 and over; ICM: Intensive Case Management; MDD: major depressive disorder; MHSU: mental health and substance use; MMSE: Mini-Mental State Examination; NA: information not available in the review; NS: non-specified within the review; PANSS: Positive and Negative Syndrome Scale; QoL: quality of life; RCT: randomised controlled trial; SAD: schizoaffective disorder; SCH: schizophrenia; SF-12/SF-36: Short-Form Health Survey (12- and 36-item versions); SMI: severe mental illness; TBI: traumatic brain injury; VR-12: Veterans RAND 12-Item Health Survey; WHOQoL-BREF: World Health Organization Quality of Life.

Table 1: **Characteristics of the 17 reviews included in the umbrella review.**

task-shifting.[49,50,54,64] However, roles and responsibilities within teams were not always clearly defined. Integration of newer roles, such as care navigators or peer workers, was limited, and when peers were involved, their participation was rarely embedded within formal multidisciplinary collaboration.[52,63,66,67] Informal caregivers were not formally assigned roles within these programmes. Although some interventions offered ad hoc training initiatives for participating professionals,[49,57,66] macro-level workforce planning at the national or regional level was largely absent. Issues such as aligning workforce development with demographic trends, embedding mental health competencies into primary care training, or providing systematic education in care coordination and team-based practice were seldom considered.

Financing of integrated care programmes for people with SMI was rarely discussed. Few programmes benefited from public funding, typically through Medicaid (the US government-funded health insurance programme for low-income and vulnerable populations) or other structural health programmes, and adequate financial incentives to promote coordination, particularly for external providers, were often lacking.[54] When reported, funding was usually short-term and project-based,[63] with limited support for long-term implementation and no sustainable financing models described. Mechanisms such as risk adjustment based on case-mix, as well as considerations of patients' out-of-pocket costs and financial equity, remained largely absent.

Shared electronic medical records and interoperable health information systems were highlighted as key levers for effective coordination but were not systematically implemented.[54,68] Other digital tools (patient portals, telemedicine, remote monitoring) and point-of-care medical devices used in routine physical health monitoring (e.g., electrocardiogram, point-of-care glucose monitoring device) were rarely described or evaluated within these programmes. As reviews of standalone technological interventions were not eligible, these findings characterise technology as a component of integrated care programmes, rather than the broader technology-enabled care evidence base.

Few programmes were comprehensively evaluated for their impacts on patients, health professionals, and implementation processes.[50,52,54,59,60,67–69] Most studies focused on patient-level clinical outcomes while social outcomes (e.g., employment continuity, housing stability, or social inclusion) and system-level effects were rarely addressed. Stakeholder perspectives, including those of individuals with SMI and their informal caregivers, were largely absent, with no identified use of patient-reported outcome and experience measures (PROMs/PREMs). Although individual-level data were commonly collected for clinical monitoring and continuity of care, tools such as predictive risk algorithms, population health management strategies, and performance indicators remained underutilized. Few programmes incorporated mixed-methods or participatory evaluation mechanisms into their ongoing operation, including routine collection of service-user feedback, qualitative process evaluation, or co–design cycles. Overall, outcomes were predominantly clinical and provider-defined, with limited attention to implementation fidelity, service-user-defined measures, or the cross-sectoral and longitudinal nature of integrated care.

Three of the included reviews used meta-analytic methods to pool effect estimates. A cumulative meta-analysis of 53 trials of collaborative chronic care models found significant effects on depression and quality of life, with stronger benefits in more severely ill individuals.[42] A Cochrane review of intensive case management (40 RCTs, n = 7524) reported shorter hospital stays, improved engagement with services, better functioning, higher employment, and reduced homelessness, with hospitalisation effects greatest at high fidelity to the Assertive Community Treatment model.[41] In contrast, a Cochrane review of 41 RCTs of psychosocial interventions for dual diagnosis found no high-quality evidence supporting any one intervention over standard care.[40]

Beyond these meta-analytic findings, the broader synthesis of included reviews indicated that integrated care programmes for individuals with SMI generally showed benefits in improving healthcare access and service use. Evidence indicated increased use of primary care and greater uptake of preventive care, including improvements in follow-up of chronic conditions and risk-factor management.[50,52,59,65,66,70] These benefits were more pronounced among individuals with the most complex medical and social needs.[63] Overall, these improvements in care processes represent essential first steps toward addressing the barriers that people with SMI face in improving their physical health.

However, the impact of integrated care programmes on broader physical health and social outcomes remained limited and appeared highly dependent on implementation processes. Only a small number of interventions demonstrated measurable improvements in physical health outcomes,[49,71] with most evidence stemming from randomized controlled trials (RCTs), with modest effect sizes and limited generalisability to routine practice. The literature did not allow clear identification of the organizational features driving effectiveness. Overall quality of evidence was low, with many studies relying on short follow-up periods, despite expectations that changes in health outcomes may require longer timeframes to become apparent in people with long-standing medical problems.[65]

Discussion

This umbrella review synthesized the core components and impacts of integrated care programmes for people

with SMI, using a broad definition ranging from partially to fully integrated approaches. Seventeen reviews met the inclusion criteria, enabling the identification of 20 main types of existing programmes. However, these programmes were heterogeneous, and many key organizational components were poorly reported, even within primary research articles.

Service delivery most commonly integrated physical healthcare within mental health services, especially in community-based outpatient settings. Yet users were rarely involved in programme design, and coordination with social services remained limited. Leadership and governance often relied on strong local clinical leadership, through bottom-up pilot initiatives, yet formal governance frameworks, accountability mechanisms, and system-wide implementation strategies were largely absent, raising concerns about sustainability and scalability.

Workforce organization frequently centred on case managers, typically nurses, coordinating multidisciplinary teams. The integration of peer workers, informal caregivers, and systematic workforce planning was uncommon. Financing was another major gap: few programmes benefited from stable public funding, and financial incentives to promote coordination and equity were limited. Technologies such as interoperable electronic medical records or digital monitoring tools were rarely implemented within the interventions. Finally, information and research on these programmes seldom provided a comprehensive assessment of their impacts and did not incorporate patient-reported outcome and experience measures, which are critical to patient-centred care. Overall, macro-level considerations, such as policies for service integration, national workforce strategies, long-term financing mechanisms, and investments in health information technology, were rarely addressed, limiting the transferability of interventions across health systems.

While integrated care programmes showed encouraging benefits in improving access to care and preventive services, evidence of their impact on physical health and broader social outcomes remained limited and inconsistent. The overall quality of evidence was low, often characterized by modest effect sizes, short follow-up periods, and insufficient understanding of the organizational and implementation factors that drive effectiveness.

Despite the limitations of the evidence base, several insights emerge for the design and implementation of integrated care for people with SMI. Integration efforts have largely focused on embedding physical healthcare into mental health services, suggesting that this 'reverse integration'[72] might be better aligned for the needs of this population than integration within general primary care. Strengthening the involvement of service users in programme design, improving collaboration between health and social services, and expanding the use of emerging professional roles, such as peer workers and care navigators, could enhance person-centredness and continuity of care beyond case manager–led approaches.

The main barriers to effective integrated care for people with SMI lie at the system level. Ensuring sustainability and scalability will require more robust governance structures, clearer organisational vision, and financing mechanisms that support long-term implementation. Investment in digital infrastructures, including interoperable health information systems, shared records and digital tools, should be considered a core enabling component rather than an optional add-on, as these infrastructures are essential for coordination, accountability and evaluation of integrated care.

Moreover, future research should adopt standardised reporting frameworks, such as the Template for Intervention Description and Replication (TIDieR) checklist,[73] and systematically address the six dimensions of the SELFIE framework.[21] They should also examine the macro- and meso-level dimensions of integrated care programmes in greater depth to support their adaptation and implementation across diverse country contexts. Finally, long-term evaluations in real-life settings remain essential to assess sustained impacts on health outcomes, cost-effectiveness, and patient experiences, requiring extended follow-up periods.

This umbrella review followed a rigorous and systematic process. Eligibility criteria were pre-specified, and an extensive literature search was conducted across multiple databases to identify existing integrated care programmes for people with SMI. Bias was minimized through dual independent screening and data extraction. An additional strength of this research is the use of a multimorbidity-oriented conceptual framework (SELFIE) to structure the synthesis, which allowed us to systematically chart the service delivery, leadership and governance, workforce, financing, technology, and information features of the identified programmes across multiple levels of care. However, our approach may have missed some very recent interventions not yet captured in literature reviews, despite including the most up-to-date reviews available, particularly as advocacy for integrated care for people with SMI is gaining momentum.[74,75] Similarly, we may have missed some interventions only described in grey literature not referenced on Google Scholar, but they are less likely to have undergone formal evidence-based evaluations. The limited use of digital technologies in identified programmes may reflect publication lag rather than actual absence. Furthermore, relying mainly on systematic reviews, which predominantly focus on RCTs, may restrict insights into real-world implementation, especially regarding leadership, governance, and financing. In addition, the identified programmes and the SELFIE framework focused on coordinating services around the individual patient, with limited attention to families, carers, and wider support

networks, or to the perspectives of people accessing care for SMI. Finally, the quality of included reviews remained limited and most offered scarce description of programme core components, although we attempted to address this gap by supplementing our narrative synthesis with information from primary studies.

This umbrella review highlights the fragmented development of integrated care programmes for people with SMI and the limited evidence on their effectiveness beyond improvements in care processes. Major gaps remain in governance, financing, social care integration and service-user involvement.

These findings will guide the next phase of EU-MIND, which will use a Delphi process with stakeholders, including people with lived experience, professionals and policymakers, to identify priority components and build consensus on a scalable and sustainable programme for implementation across European health systems.

Contributors

All authors contributed to the conception and design of the study. L.B. and M.M. were responsible for project administration and funding acquisition. Conceptualization of the paper was led by C.G., U.I., L.B., E.T.B., and M.M. The search strategy was developed, and the literature search conducted by M.R. and U.I. Data curation and charting were carried out by E.T.B., M.R., U.I., E.C., A.T.K., A.B., T.G., and A.K. The first draft of the manuscript was written by U.I. and C.G., and critically reviewed and edited by L.B. All authors read and approved the final manuscript.

U.I. and C.G. accessed and verified the underlying data. All authors had full access to the data and had final responsibility for the decision to submit for publication.

The EU-MIND Consortium Collaborators contributed to the conception and design of the EU-MIND initiative within which this umbrella review was conducted, and reviewed and approved the results of the study.

Data sharing statement

All data and materials used in this research are available from the corresponding author upon request.

Declaration of interests

TG reports honoraria for lectures, presentations, or educational events from Apotex Poland/Aurovitas Pharma Polska, Celon Pharma, Exeltis Poland, Lundbeck Poland, Neuraxpharm Polska, Takeda Pharma, and Valeant Polska, all paid directly to him; and travel and meeting support from EGIS, GL Pharma, Lundbeck Poland, and MEDICE, all paid directly to him; all outside the submitted work. All other authors declare no competing interests.

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Appendix A. Supplementary data

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