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Effectiveness of Recovery-Oriented Mental Health Nursing Interventions in Improving Quality of Life and Functional Outcomes Among Patients With Severe Mental Illness: A Systematic Review and Meta-Analysis

Saja Hashem Mohammed¹, Rana Akram Rawashdeh², Obidah Abdelrazzaq Albreizat³, Intisar Abdul Ghani Khudhur⁴, Bahaa Eldin Abdellatif Ali⁵

¹Community & Mental Health Department, College of Nursing, Al-Bayan University, Baghdad, Iraq., saja.h@albayan.edu.iq, ORCID: 0000-0003-2137-4637

²PhD, RN, Assistant Professor, College of Nursing, Philadelphia University, Jarash, Jordan. rrawashdeh@philadelphia.edu.jo, ORCID: 0000-0002-9991-8094

³MSN, RN, College of Nursing, Isra University, Amman, Jordan., obidah.albreizat@iu.edu.jo, ORCID: 0000-0002-4285-1677

⁴Department of Nursing, Faculty of Nursing, Madenat Alelem University, Baghdad, Iraq., intesar.a.abbas@mauc.edu.iq, ORCID: 0000-0002-8178-119X

⁵Department of Psychiatric and Mental Health Nursing, North Private College of Nursing, Arar 73312, Northern Borders Region, Saudi Arabia., bahaabdellatif@gmail.com, ORCID: 0009-0001-2303-8365

ABSTRACT:

Background: Recovery-oriented mental health care extends treatment beyond symptom control toward participation, everyday functioning, autonomy, and quality of life (QoL). Mental health nurses are central to many recovery-oriented services, yet the effectiveness of nursing-relevant interventions for people with severe mental illness (SMI) remains uncertain.

Methods: A systematic review and meta-analysis followed PRISMA 2020. Scopus, PubMed, and Web of Science were searched for studies published from 2016 to 2026; no abstract or full-text availability filter was applied in PubMed. Randomized, cluster-randomized, quasi-experimental, and quantitative intervention studies were eligible when they evaluated a recovery-oriented intervention with an identifiable nursing component and reported QoL or functional outcomes. Random-effects synthesis used Hedges' g with modified Hartung–Knapp inference.

Results: The searches identified 2,321 records: 632 from Scopus, 977 from PubMed, and 712 from Web of Science. After 872 duplicates were removed, 1,449 unique records were screened; 22 reports were assessed and 10 studies were included. Two included studies provided additional narrative evidence: a community psychiatric-nursing Illness Management and Recovery study reported better social/global functioning, and a nurse-facilitated inpatient recovery-education evaluation reported improved patient-perceived QoL. Three comparative studies were sufficiently compatible for functional meta-analysis. The pooled effect favored recovery-oriented care (Hedges' g = 0.34), but uncertainty was substantial (95% CI -0.24 to 0.91; p = .129; I² = 0%). QoL was synthesized narratively because measures and estimands were heterogeneous.

Conclusion: Recovery-oriented nursing interventions show a promising but uncertain functional benefit. Stronger trials with explicit nursing roles, standardized outcomes, and complete effect reporting are needed.

1. INTRODUCTION

Severe mental illness (SMI) is often accompanied by chronic functioning deficits in self-care, social engagement, work activity, and everyday functioning, and these deficits are closely related to reduced quality of life (QoL) both in the clinical and community settings (Hansson, 2006; Harrison et al., 2020). Today, evidence for schizophrenia remains largely unchanged with high levels of health-related QoL deficits as well as functional outcomes, and the burden of illness (particularly negative and general psychopathology) is associated with worse patient-centred outcomes (Chan et al., 2026). These observations are clinically important as not being able to assume meaningful roles, autonomy, relationships or participation in normal life is not guaranteed by symptom stabilization (van Eck et al., 2018). Following this, modern mental health care is increasingly interested in using QoL and functioning as outcomes, in addition to symptom-based indicators, and to better capture whether an individual is able to have a satisfying and meaningful life (Harrison et al., 2020; Leendertse et al., 2021).

The recovery paradigm expanded the focus of mental health services from symptom reduction and remission to a person-centred process of living a meaningful, hopeful and contributing life when limitations from mental illness remain (Anthony, 1993). The recovery literature was synthesized and found to include five processes that are common to recovery: connectedness, hope and optimism, identity, meaning in life and empowerment (Leamy et al., 2011). Personal recovery is conceptually distinct from clinical recovery, although related and meta-analytic evidence in schizophrenia-spectrum disorders shows that personal recovery will still improve when symptoms or other clinical measures are partially resolved (van Eck et al., 2018). This distinction ensures interventions are explicitly targeting outcomes that involve strengthening agency, strengths, choice, meaningful goals, social connection and participation as outcomes of care, not symptom reduction as the end goal of care (Leamy et al., 2011; Winsper et al., 2020).

Recovery-oriented practice is an interpretation of these principles that involves a range of practices in the delivery of services including collaborative goal setting, strengths-based care, shared decision making, therapeutic partnership, self-management support, peer involvement and social and functional participation (Chester et al., 2016; Winsper et al., 2020). Mental health (MH) nurses are especially pertinent to this approach as their current work frequently involves long-term therapist-client relationships, psychoeducation, medication management, coping skills training, relapse prevention, case/health management and social functioning promotion (Thongsalab et al., 2023). An integrative review of recovery-oriented nursing for people with schizophrenia revealed that the direct nursing practices could include therapeutic relationships, psychoeducation, coping skills, cognitive-behavioral techniques, medication-adherence support, social-functioning interventions, and the practices should be person-centered and involve empowerment and collaboration with peer support (Thongsalab et al., 2023). So, nursing practice provides a possible approach whereby recovery principles could impact both subjective QOL and observable functioning.

However, effectiveness literature is varied. Recovery-focused interventions can range from practice transformation at the team level, structured illness self-management, rehabilitation, resource group approaches, peer-supported programs, to individual activity-oriented approaches (Bitter et al., 2017; Goh et al., 2023; Slade et al., 2015; Tjaden et al., 2021). Results of trials are not always good in all areas of outcomes. For instance, resource-group care within flexible assertive community treatment (FACT) resulted in positive outcomes for empowerment and a number of recovery-related outcomes; effect sizes for QoL and functioning tended to be small (Tjaden et al., 2021). A systematic review and meta-analysis of Illness Management and Recovery programs showed that there was limited evidence that they were superior to existing care on personal recovery, functioning, and QoL outcomes, and that the intensity of implementation and amount of program exposure may impact effectiveness (Goh et al., 2023). In contrast, recovery-focused rehabilitation, which is more recent and centers on activities, has demonstrated clinically relevant improvements in recovery-related QoL in supported accommodation, indicating that some recovery-focused models can have an impact on patient-focused outcomes when there is a closer relationship between the intervention and the activity and context (Sjöberg et al., 2025).

Previous syntheses have explored personal recovery in general, recovery-oriented services in the community, recovery-oriented models in particular (such as Illness Management and Recovery), and content of recovery-oriented nursing practice (Goh et al., 2023; Mousavizadeh & Jandaghian Bidgoli, 2023; Thongsalab et al., 2023; Winsper et al., 2020). The question of the effectiveness of recovery-oriented mental health nursing interventions in the improvement of QoL and functional outcomes of SMI populations is a more specific quantitative question that is not addressed by these bodies of evidence. Taking a focus on these outcomes is crucial as QoL and functioning are indicators of whether recovery principles translate into changes in real-world functioning and not only changes in recovery attitudes, hope or symptom ratings (Harrison et al., 2020; Leendertse et al., 2021).

A focused synthesis may also help to determine if there are differences in the effects observed by intervention model, level of nursing involvement, setting of the services, diagnosis, length of follow-up and type of study.

The main aim of this systematic review and meta-analysis is thus to review the effectiveness of recovery-oriented mental health nursing interventions in improving QoL and functional outcomes in people with SMI when compared to usual care, waiting-list or active comparators. Secondary objectives include describing the characteristics of the intervention components and the roles of the nurses in the evidence base; summarising the QoL and functional outcomes separately; and, if data allow, examining heterogeneity according to the type of intervention, delivery model and setting, diagnosis, follow-up period, and type of study. The quantitative synthesis is guided by three *a priori* hypotheses: recovery oriented mental health nursing interventions will lead to better QoL than comparison interventions; recovery oriented mental health nursing interventions will lead to improved global, social, occupational, psychosocial and daily functioning outcomes than comparison interventions; and, recovery oriented mental health nursing interventions will have differential effects by intervention and service-delivery context, given that recovery-oriented care is inherently multicomponent and context dependent (Winsper et al., 2020).

2. LITERATURE REVIEW

Recovery is not a single clinical endpoint. Anthony's (1993) powerful definition of recovery focused on the process being intensely personal and the change in attitudes, values, goals, skills and roles, and subsequent empirical synthesis talks of recovery experiences as falling into the CHIME areas of connectedness, hope, identity, meaning and empowerment (Leamy et al., 2011). This is a different view from what is commonly thought in the medical model of recovery, which is usually manifested as symptom relief and functional normalisation. Studies on clinical and personal recovery in schizophrenia-spectrum disorders show a mixed, partial association between these types of recovery, and that individuals can experience personal recovery with ongoing clinical symptoms and/or disability (van Eck et al., 2018). In a later meta-analysis, hope, meaning and empowerment were found to be especially strongly associated with personal recovery while social factors and functioning were found to be less but still positively associated (Leendertse et al., 2021). Although the results identify symptom change as an insufficient measure of recovery oriented interventions, functional participation and QoL are also crucial as they reflect whether subjective recovery processes are reflected in everyday life.

Recovery oriented practice is also a multi-faceted process. A systematic review of research on the work of recovery oriented practice highlighted the importance of flexible and person-responsive care, supportive relationships, working collaboratively, strengths and opportunities for meaningful choice as opposed to a single technique (Chester et al., 2016). Drawing on a large body of literature on interventions, Winsper et al. (2020), suggest that there are four common ways in which recovery-focused interventions can have an impact: providing information and skills, developing a therapeutic working alliance, modelling recovery, and increasing choice. They also identified, through their logic model, that service-user motivation, professional attitudes, organisational culture and social circumstances have an impact on intervention effects. Qualitative meta-synthesis also reports that helping and supporting, collaboration and relational work, identity integration and hope generation are key features of recovery oriented services (Klevan et al., 2021). Altogether, this literature suggests that recovery orientation can be thought of more as a therapeutic process and approach to organizing therapeutic relationships and care around personally meaningful goals rather than as a single manualized therapeutic intervention.

These mechanisms are significantly related to mental health nursing. Nurses regularly make longitudinal contact, keep track of changes in mental state and in daily functioning, support the decisions around medication and self-management, carry out psychoeducation, coordinate multidisciplinary care and support families and community services (Thongsalab et al., 2023). The schizophrenia-specific review classified the recovery-focused nursing practices into direct (nurse-patient relationship, psychoeducation, coping skills, cognitive-behavioral, medication adherence, and social functioning) and indirect (enabling service environment) care (Thongsalab et al., 2023). The same review by Thongsalab et al. (2023) highlighted the elements of empowerment, holistic care, peer workers, and person-centred therapeutic relationships as key features of recovery oriented nursing. These components offer a theoretical link between nursing actions and better functioning and QoL: skills and self-management can enhance everyday functioning, collaborative goal setting can enhance engagement, social support and/or occupational support can enhance meaningful participation in the world.

Specific examples of recovery-oriented models provide examples of promise and inconsistencies. A rigorous test of service-level recovery-oriented practice (Slade et al., 2015) took place in the community mental health teams in the REFOCUS cluster randomized trial, in which they were trained to focus more on values, preferences, strengths, goals, coaching, and partnership

with service users. The Comprehensive Approach to Rehabilitation (CARE) was created to enhance QoL, recovery, participation, empowerment and associated outcomes through individual goal support, vulnerability management and the social environment and the cluster randomized evaluation highlights the incorporation of recovery principles into rehabilitation services as opposed to providing a separate symptom-focused therapy (Bitter et al., 2017). Resource Groups embedded in flexible assertive community treatment led to greater empowerment and lesser positive impacts in personal recovery, QoL, disability, general functioning and social/occupational functioning, suggesting that patient-defined recovery goals can impact multiple outcome domains, although may not have large impacts on all measures (Tjaden et al., 2021).

Illness Management and Recovery is another major recovery-oriented approach, which utilizes psychoeducation, relapse prevention, coping, medication management, social support and personally meaningful goal setting. Goh et al. (2023) conducted a systematic review and meta-analysis to assess the effectiveness of telephone supportive interventions for personal recovery, social functioning, global functioning, hope, social support, QoL, substance use, and illness knowledge in comparison to standard care or other interventions in 2023, showing that evidence of superiority was limited and inconsistent across outcomes. This mixed pattern is of relevance for the present review as it suggests that a recovery label does not ensure a good functional outcome and that exposure to intervention, fidelity to implementation, choice of outcomes and context may have an impact upon the effects observed. Larger scale reviews of community-based recovery-oriented programs also show positive impacts on employment, independence, social engagement, communication, and stigma outcomes, but there is also a high degree of variation in program content and in the quality of the studies (Mousavizadeh & Jandaghian Bidgoli, 2023).

The study of QoL and functioning also faces methodological issues because these outcomes are measured using a variety of instruments. Global functioning scales, social scales, occupational scales, disability scales, condition-specific QoL scales, generic QoL scales and patient-reported recovery-related QoL scales have all been used in studies in SMI (Harrison et al., 2020; Leendertse et al., 2021). The systematic review of supported accommodation revealed that, although the overall wellbeing impact of supported accommodation was less evident, there was still a benefit with respect to differences in QoL in certain domains, including living conditions and social functioning (Harrison et al., 2020). Recent synthesis of schizophrenia also supports the meaningful impact of clinical features on functional and QoL outcomes and that functional and QoL outcomes are related but not interchangeable (Chan et al., 2026). Therefore, if different instruments are used, different constructs are measured, the directions of the scales are not the same and a recovery-oriented meta-analysis is performed, the effect sizes should be standardized.

The literature thus indicates a need for a synthesis that concentrates on recovery orientation in mental health nursing, SMI, QoL, and functioning. While broad review of recovery, including mechanisms and concepts, and nursing review of professional practices, can be described, a nursing-focused quantitative synthesis of the different types of interventions can validate the translation of these recovery principles into measurable, patient-centered and functional outcomes (Goh et al., 2023; Thongsalab et al., 2023; Winsper et al., 2020). The present review aims to fill this lacuna by using explicit nursing-relevance criteria, distinguishing between QoL and functional outcomes and providing intent for quantitative synthesis, design-sensitive risk-of-bias assessment and sensitivity analyses.

3. METHODOLOGY

A systematic review and meta-analysis design was used to evaluate comparative and pre–post evidence on recovery-oriented mental health nursing interventions. Reporting was structured according to PRISMA 2020 (Page et al., 2021). Eligibility was specified prospectively using a PICOS framework, with recovery orientation, nursing relevance, and the target outcome families treated as separate criteria so that studies were not included solely because they used the term “recovery.”

Eligibility criteria

Adults with severe, serious, or persistent mental illness (schizophrenia-spectrum disorders, psychosis, bipolar disorder, or severe/persistently disabling major depressive disorder) participated. Interventions had to be recovery-oriented or recovery-focused, and contain a recognizable component specifically related to mental-health nursing (nurse-led or nurse-delivered or multidisciplinary, with nurses as active team members). Treatment as usual, wait-list/no intervention, active comparators, and/or evaluable pre–post comparison were eligible comparators, depending on study design. The two outcome families targeted were: QoL and functional outcomes including the validated disability/function measures, global, daily, social, occupational, psychosocial, community, and independent-living. Studies that were reviews, protocols, editorials, case reports, or qualitative only studies, cross-sectional studies, and studies that reported only recovery, hope, symptoms, medication

adherence, and/or service utilization without a target QoL/functional outcome were excluded. PICOS eligibility criteria that were used during screening and full-text assessment are presented in Table 1.

Table 1. PICOS eligibility criteria for the review

Domain	Inclusion criteria	Main exclusions
Population	Adults with severe/serious/persistent mental illness; schizophrenia-spectrum disorder, psychosis, bipolar disorder, or severe/persistently disabling major depressive disorder.	Non-SMI populations; samples in which eligible SMI data cannot be separated.
Intervention	Recovery-oriented/recovery-focused mental health intervention with an identifiable nursing role (nurse-led, nurse-delivered/facilitated, psychiatric/mental-health nursing, or explicit nursing component in multidisciplinary care).	Interventions without recovery orientation or without plausible/identifiable nursing relevance.
Comparator	Treatment as usual, wait-list/no intervention, or active comparator; eligible quasi-experimental studies may use pre-post or nonrandomized comparison designs.	Purely descriptive studies without an intervention effectiveness comparison or evaluable change.
Outcomes	Quality of life and/or global, daily, social, occupational, psychosocial, community, participation, disability, or independent-living functioning.	Personal recovery, hope, symptoms, adherence, or service use alone without a target QoL/functional outcome.
Study design	RCTs, cluster RCTs, quasi-experimental studies, controlled pre-post studies, and quantitative intervention evaluations with extractable outcome data.	Reviews, protocols, editorials, case reports, qualitative-only studies, cross-sectional studies, and non-intervention observational studies.

Information sources and search strategy

On 14 September 2026, we searched the databases Scopus, PubMed, and Web of Science, and harmonized the publication window to 2016-2026. Scopus was searched using TITLE-ABS-KEY, PubMed was searched using Title/Abstract keywords combined with MeSH concepts and Web of Science was searched using Topic (TS). All strategies included the terms severe mental illness/eligible diagnoses, recovery-oriented language and nursing/mental-health-service language. A search was performed in PubMed, without using abstract or full-text availability filters. Outcome terms did not need to be specified as QoL and functional outcomes may be called by instrument name or reported as secondary outcomes. Complete search strategies are included in Appendix A.

Record management and study selection

After the final database sets were created, the number of records in each set was: 632 Scopus records, 977 PubMed records, and 712 Web of Science records, which resulted in a total of 2,321 records before deduplication. For duplicate detection, normalized DOI matching, PMID matching and normalized title matching (case-folded, punctuation/diacritics removed, whitespace normalized) were applied. 872 duplicate records were removed through the cross-database reconciliation and 1,449 unique records were left to be screened.

Titles and abstracts were screened using the prespecified eligibility criteria and potentially relevant records were kept for detailed eligibility assessment where reporting was insufficient. In total, 23 reports were sought, of which one was not retrievable, 22 were assessed for eligibility and 12 were excluded upon full-text review, leaving 10 studies for inclusion. To ensure consistent

application of the prespecified eligibility criteria throughout the screening process, screening decisions and exclusion reasons were documented during the screening process.

Data extraction

The information for each study was transferred to a standardized evidence table including author/year, country and setting, design, diagnostic population, baseline sample size, intervention components, nursing role, comparator, intervention duration and intensity, follow-up, QoL and functional instruments, attrition and effect statistics. If quantitative outcomes were available, arm-level means and standard deviations, adjusted between-group estimates, confidence intervals, standardized effects or other statistics to reconstruct an effect and its standard error were extracted. If more than one report used the same intervention program, they were clustered together. Before coding, the data used in the meta-analysis were verified by reading the full-text reports or detailed bibliographic records.

Risk of bias and certainty of evidence

Randomized and cluster-randomized trials were assessed using the Cochrane Risk of Bias 2 (ROB 2) framework (Sterne et al., 2019), which includes the domains randomization, deviations from intended interventions, missing outcome data, outcome measurement, and selective reporting. ROBINS-I domains (Sterne et al., 2016) were used to consider nonrandomized intervention evaluations, with a focus on confounding and selection bias. Judgements were conservative as several reports gave only partial information on allocation/implementation. Certainty of evidence was assessed using the GRADE domains of risk of bias, inconsistency, indirectness, imprecision and publication bias (Guyatt et al., 2008).

Statistical analysis

The QoL and functional outcomes were evaluated separately. Mean differences were reported for identical scales and standardized mean differences, corrected for small-sample bias (Hedges' g), were reported for conceptually similar functional constructs that were reported on different scales. Directions of effect were aligned towards the recovery-oriented intervention (i.e., positive values favored the recovery-oriented intervention). Random-effects models were prespecified for the following reasons: (1) Intervention content varied clinically as did intervention setting, diagnosis, follow-up time, and outcome measures. Heterogeneity was quantified between studies using Cochran's Q , tau-squared and I-squared (Higgins et al., 2003).

Only three comparative studies provided functional estimates that were on a common standardized metric. The between-study variance was estimated with restricted maximum likelihood (REML). Due to very small k , uncertainty around the pooled estimate was determined via a modified Hartung-Knapp approach, and not just using a normal-approximation confidence interval (Knapp & Hartung, 2003; Röver et al., 2015). When outcome constructs or the estimands reported were incompatible, statistical pooling of QoL results was not performed. Funnel-plot asymmetry and Egger testing were not performed as there were fewer than 10 comparable studies contributing to any pooled outcome (Egger et al., 1997). Subgroup and meta-regression analyses were also not planned due to an insufficient number of quantitative studies.

Of the three standardized functional estimates, two had to be reconstructed from published data (coefficient or test statistics) instead of being directly extracted. If reconstruction was necessary, the coefficient or test statistic was reported, and from this the effect estimate and/or standard error was reconstructed.

4. RESULTS

Study selection

The searches identified 2,321 records: 632 from Scopus, 977 from PubMed, and 712 from Web of Science. Deduplication removed 872 records, leaving 1,449 unique records for screening. A total of 1,426 records were excluded during title/abstract screening and 23 reports were sought. One report could not be retrieved, 22 reports were assessed for eligibility, 12 were excluded, and 10 studies met the eligibility criteria.

Figure 1 summarizes the final PRISMA 2020 study-selection process from identification through inclusion.

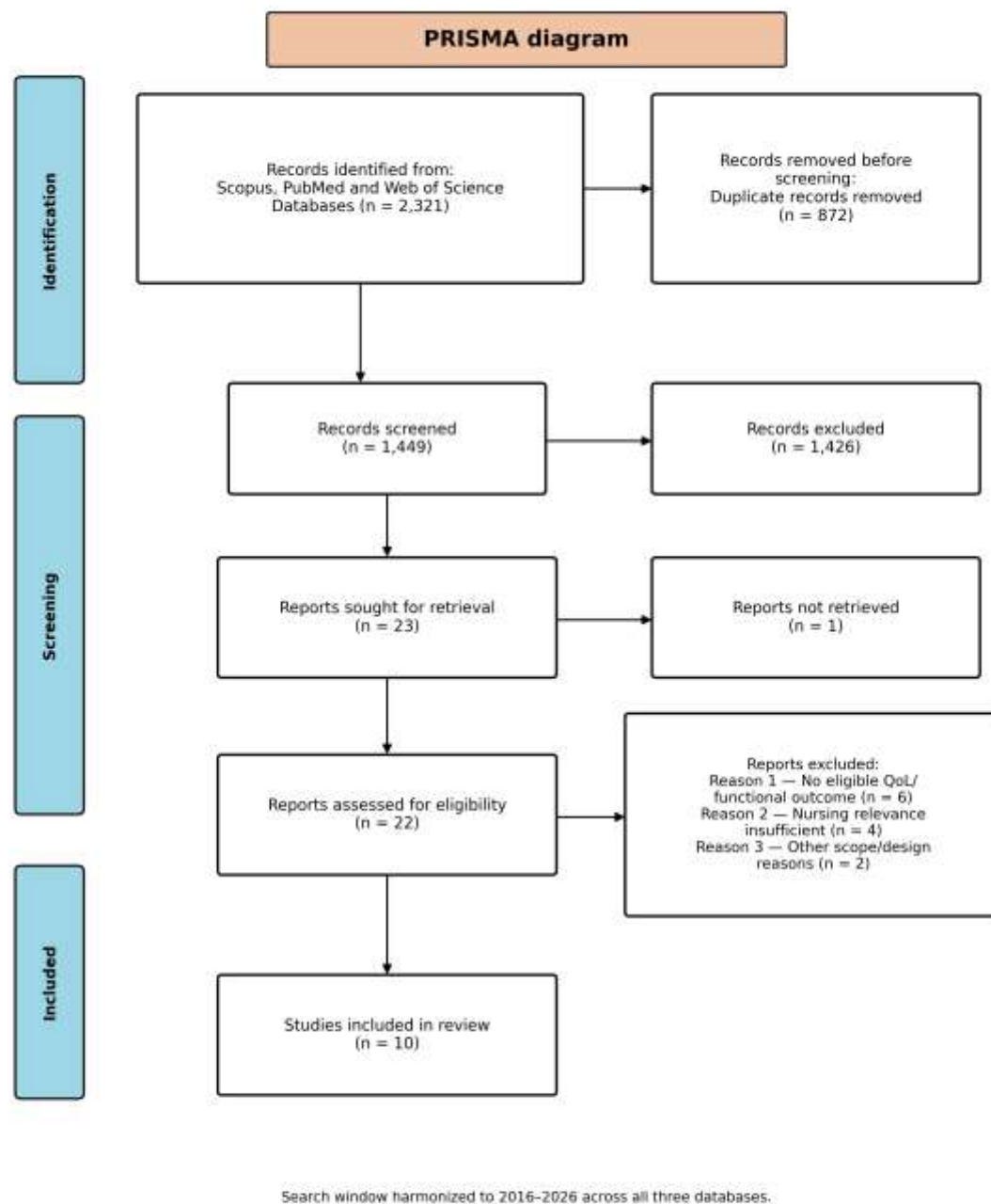


Figure 1. PRISMA 2020 flow diagram for study identification, screening, full-text eligibility, and inclusion.

Study characteristics

All 10 included studies were published between 2017 and 2023. Nine reported sample sizes—with the inpatient recovery-education quality-improvement report reporting no patient sample size in its abstract. Three studies were uncontrolled feasibility/service or quality-improvement evaluations and six studies used a randomized or cluster randomized design, with

one study applying a controlled time-series experimental design. These included supported housing, community mental-health teams, inpatient psychiatric care, Housing First, assertive community treatment, and longer-term psychiatric care. Structured interventions (Cognitive Adaptation Training, HospitalitY, community IMR, and inpatient recovery education) included explicit nursing roles and several service models were multidisciplinary. Table 2 provides an overview of the characteristics of the studies that were included.

Table 2. Characteristics of included studies

Study	Design / baseline N	Intervention and nursing role	Target QoL / functional outcomes
Tan et al. (2017), Singapore	Controlled time-series experimental study; N=50; random allocation stated	Illness Management and Recovery for 12 months in a community mental-health team; community psychiatric nurses and nurse clinicians were central to delivery/context.	Global Assessment Scale/social functioning significantly favored intervention; no compatible variance-bearing arm statistics were available for pooling.
Bitter et al. (2017), Netherlands	Cluster RCT; N=263	CARe training for sheltered/supported-housing teams versus care as usual. Multidisciplinary staff intervention; nursing-specific contribution not isolated.	MANSA QoL; Social Functioning Scale. QoL improved in both groups; no sustained intervention×time benefit; social functioning unchanged.
Passley-Clarke (2019), USA	Quality-improvement pre/post evaluation; patient N not reported in the abstract	Nurse-facilitated recovery-education groups on two adult psychiatric inpatient units.	Patient-perceived QoL reported as improved; QoL was assessed postimplementation without a compatible baseline/comparator effect estimate.
Frost et al. (2017), Australia	Uncontrolled service evaluation; N=154; paired MHRS n=94	Integrated recovery-oriented sub-acute unit. Multidisciplinary model with nursing staff; independent nursing effect not estimable.	MHRS symptom management/functioning and social connection improved substantially over admission; no control group.
Monroe-DeVita et al. (2018), USA	Cluster randomized pilot; N=101	Illness Management and Recovery integrated into ACT. Team-based delivery; nursing contribution not isolated.	GAF, DLA-20, QLS-A/community integration. No significant main functional effects; small GAF effect and medium QLS-A signal.
Vogel et al. (2019), Netherlands	Uncontrolled feasibility; N=9	HospitalitY eating-club intervention with home-based skills training and guided peer support led by trained mental-health staff/nurses.	MANSA, SF-12 and PSP. Small mixed pre–post changes; no controlled efficacy inference.

Study	Design / baseline N	Intervention and nursing role	Target QoL / functional outcomes
Tinland et al. (2020), France	RCT; N=703	Housing First plus recovery-oriented ACT support (social worker, nurse, physician/psychiatrist, peer worker) versus usual services.	S-QoL-18 and SF-36. No global S-QoL advantage; psychological well-being and autonomy subdomains improved.
Stiekema et al. (2020), Netherlands	Cluster RCT; N=89	Cognitive Adaptation Training delivered by nurses plus treatment as usual versus treatment as usual.	Daily functioning (LSP primary), MCAS/SFS/SOFAS, SF-12. Daily functioning improved; no significant QoL effect.
Polat & Kutlu (2021), Turkey	RCT; N=50	Twenty-session Illness Management and Recovery program in psychiatric-nursing context versus control interview.	SFS-P. No significant total social-functioning difference; pro-social activities subscale favored intervention.
Vogel et al. (2023), Netherlands	Multicenter RCT; N=43	HospitalitY: nurse-guided home skills training and small-group peer support versus waiting-list control.	PSP, WHODAS and SFS independence competence. No significant group effects; attendance associated with better social functioning.

The wide variation in delivery model is important for interpretation. The community IMR study was embedded in community psychiatric nursing, and Passley-Clarke evaluated nurse-facilitated recovery groups. Other included models were multidisciplinary. Accordingly, the review estimates the effectiveness of nursing-relevant recovery-oriented care rather than a pure causal “nurse effect” for every study.

Functional outcomes

Only three studies reported variance-bearing functional effects for standardization: Monroe-DeVita et al. (2018), Stiekema et al. (2020), and Vogel et al. (2023). No arm-level means/standard deviations or a comparable effect estimate with uncertainty were reported for the controlled community IMR study by Tan et al. (2017), so it was synthesized narratively. There was a significant daily-functioning benefit at 12 months with nurse-delivered Cognitive Adaptation Training ($d = 0.36$, $p = .011$) (Stiekema et al., 2020). The random-effects meta-analysis of comparative functional outcomes is illustrated in Figure 2, which includes the three studies with quantitatively comparable data.

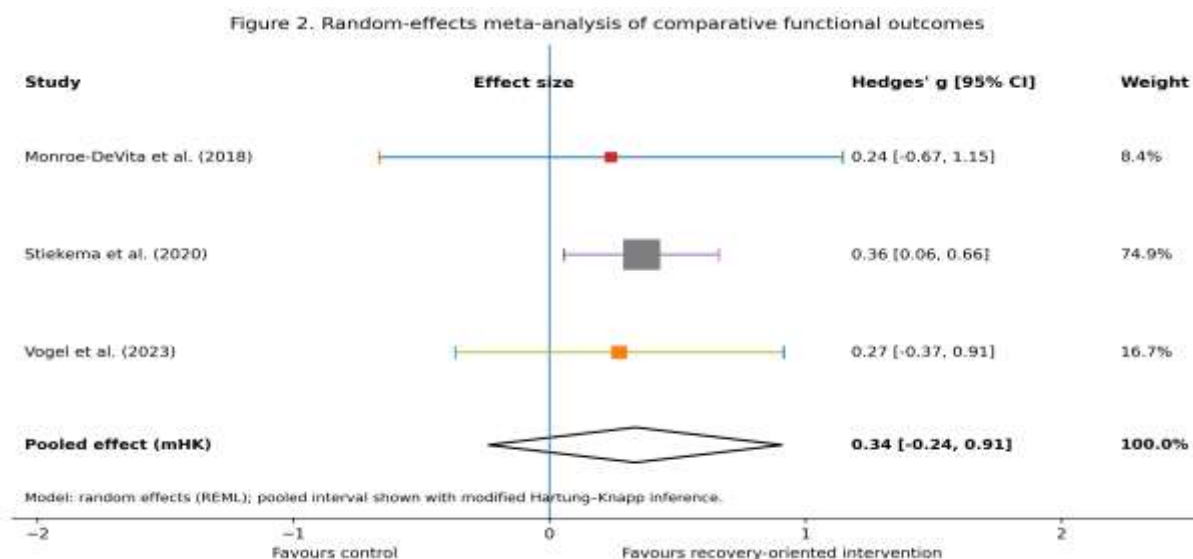


Figure 2. Random-effects meta-analysis of comparative functional outcomes. Positive Hedges' g values favor recovery-oriented intervention. The pooled interval uses modified Hartung–Knapp inference.

The REML pooled functional effect remained Hedges' g = 0.34, with tau-squared = 0.00, Q(2) = 0.10 (p = .949), and I-squared = 0%. The statistically inconclusive pooled effect size (p = .129) and wide 95% CI (−0.24, 0.91) were obtained using modified Hartung–Knapp inference. The lack of observed heterogeneity in only 3 studies must not be used as evidence of clinical equivalence.

The Stiekema standard error and the Vogel (2023) standardized effect were reconstructed from reported statistics for the quantitative synthesis. Because a variance-bearing arm-level estimate was not reported, Tan et al. (2017) was not pooled.

Quality-of-life and nonpooled functional evidence

QoL evidence was more heterogeneous and this evidence was synthesized narratively. Results for global and domain-specific aspects for CARE, Housing First, CAT, HospitaliTY, and ACT+IMR were mixed. Passley-Clarke (2019) also found better patient-perceived QoL with a nurse-facilitated inpatient recovery education, but QoL was measured after implementation and there was no compatible baseline/comparator effect estimate. The main statistical results and the contribution of the individual studies to the quantitative or narrative synthesis are shown in Table 3.

Table 3. Key statistical findings and quantitative-synthesis status

Study	Principal statistical finding relevant to review	Quantitative synthesis status
Tan et al. (2017)	Intervention participants had significantly higher Illness Management and Recovery Scale and Global Assessment Scale scores and fewer admissions/shorter stays than standard care.	Narrative functional synthesis; insufficient variance-bearing arm data were reported for standardized pooling.
Bitter et al. (2017)	At 10 months, preliminary change favored CARE for QoL (d≈0.37, p=.01), but mixed-model intervention×time effects were not sustained and no group difference remained at 20 months.	Narrative QoL synthesis only.

Study	Principal statistical finding relevant to review	Quantitative synthesis status
Passley-Clarke (2019)	Nurse recovery knowledge increased; patient-perceived QoL was reported as improved and QoL measures correlated with demographics ($p < .05$); 30-day readmission was 5% in the recovery group.	Narrative QoL synthesis only; no comparable baseline/control QoL effect available.
Frost et al. (2017)	MHRS symptom management/functioning showed a large pre-post standardized change (z -change ≈ 1.15); social connection z -change ≈ 0.82 ; all within one uncontrolled service episode.	Narrative only because there was no comparator.
Monroe-DeVita et al. (2018)	GAF standardized effect ≈ 0.24 with a wide CI; DLA-20 effect small. QLS-A showed a moderate signal but reported QLS-A information was insufficiently consistent for pooling.	GAF effect included in functional meta-analysis; QoL/QLS-A not pooled.
Vogel et al. (2019)	MANSA declined from 44.6 ± 7.3 to 40.9 ± 13.2 , whereas SF-12 physical/mental and PSP changed slightly in favorable directions in $N=9$.	Narrative feasibility evidence only.
Tinland et al. (2020)	Global S-QoL-18 slope difference 2.2 (95% CI -1.5 to 5.9); psychological well-being 4.8 (0.1 to 9.6) and autonomy 7.3 (2.5 to 12.2) favored Housing First.	Narrative QoL synthesis because multidimensional slope estimates were not comparable with other studies.
Stiekema et al. (2020)	Daily functioning improved at 12 months ($d=0.36$; $p=.011$); QoL did not show a significant treatment effect.	Functional effect included; SE reconstructed from published test statistic.
Polat & Kutlu (2021)	No significant between-group difference in SFS-P total score at posttest or 1-month follow-up; only pro-social activities subscale differed.	Narrative only; compatible arm-level total-score variance data were not reported.
Vogel et al. (2023)	Adjusted PSP coefficient $B=3.94$, $SE=4.72$ (95% CI -5.45 to 13.34 ; $p=.406$); no significant WHODAS or independence-competence effect.	Functional effect included after standardization from adjusted PSP coefficient.

Taken together, the QoL findings did not support a consistent global effect. CARE improved over time without a sustained intervention-specific advantage, Housing First improved selected domains but not global S-QoL, CAT improved daily functioning without a significant QoL effect, and HospitalitY showed discordant changes across QoL measures. The inpatient recovery-education report was favorable but noncomparative for QoL. The final evidence base therefore remained methodologically heterogeneous.

Figure 3 summarizes the distribution of study designs across the final included evidence base.

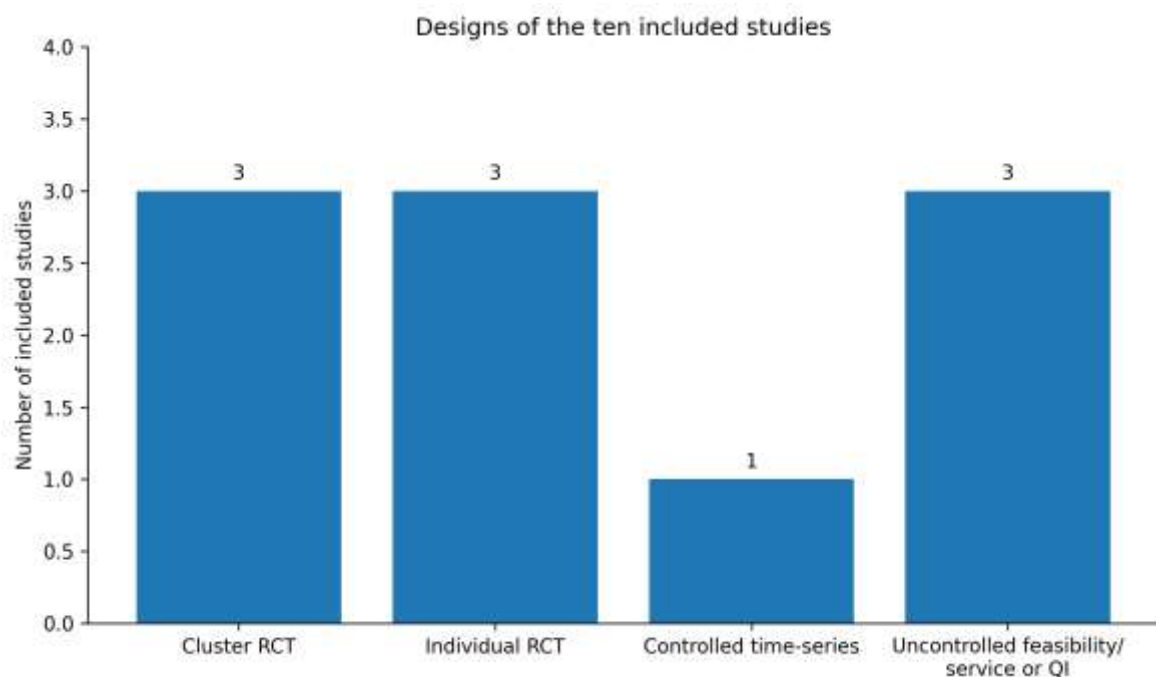


Figure 3. Distribution of study designs among the 10 included studies.

Risk of bias and certainty

Risk-of-bias concerns involved design, implementation, and incomplete reporting. Six studies were judged to have some concerns and four were high risk. Passley-Clarke was rated as high risk for causal inference as QoL was only assessed after implementing the intervention without a concurrent comparator group, and Tan et al. was rated as having some concerns because there were insufficient details of randomization or variance reporting. There was also a risk of regression to the mean and confounding in the uncontrolled evaluations. An overall risk-of-bias judgment for each included study is summarized in Table 4.

Table 4. Risk-of-bias summary for included studies

Study	Overall judgment	Main basis
Tan et al. (2017)	Some concerns	Random allocation was stated, but allocation/concealment and variance-reporting details were incomplete.
Bitter et al. (2017)	Some concerns	Open-label cluster design, lower-than-planned power, and limited intervention fidelity/contrast.
Passley-Clarke (2019)	High	Convenience QI design; no concurrent comparator for QoL and QoL was assessed postimplementation only.
Frost et al. (2017)	High	Uncontrolled single-service pre–post evaluation; no postdischarge control condition.

Study	Overall judgment	Main basis
Monroe-DeVita et al. (2018)	Some concerns	Small cluster pilot, variable intervention exposure, and limited precision.
Vogel et al. (2019)	High	Very small uncontrolled feasibility sample (N=9).
Tinland et al. (2020)	Some concerns	Open-label complex intervention; participants and interviewers unmasked.
Stiekema et al. (2020)	Some concerns	Cluster design and implementation/contextual variability despite blinded outcome assessment.
Polat & Kutlu (2021)	Some concerns	Small RCT with incomplete reporting of allocation and concealment procedures.
Vogel et al. (2023)	High	Substantial under-recruitment, intervention discontinuation/attrition, and COVID-19 disruption.

Application of the GRADE principles resulted in a low level of certainty in the pooled functional effect due to imprecision, indirectness across functional constructs, and reconstructions of two effect estimates. Certainty for global QoL was very low/inconclusive due to measures and estimands being heterogeneous, and several results being noncomparative. Fewer than 10 comparable studies reported on the pooled outcome, which precluded informative publication-bias tests. The overall risk-of-bias judgements are shown in the review-level distribution in Figure 4.

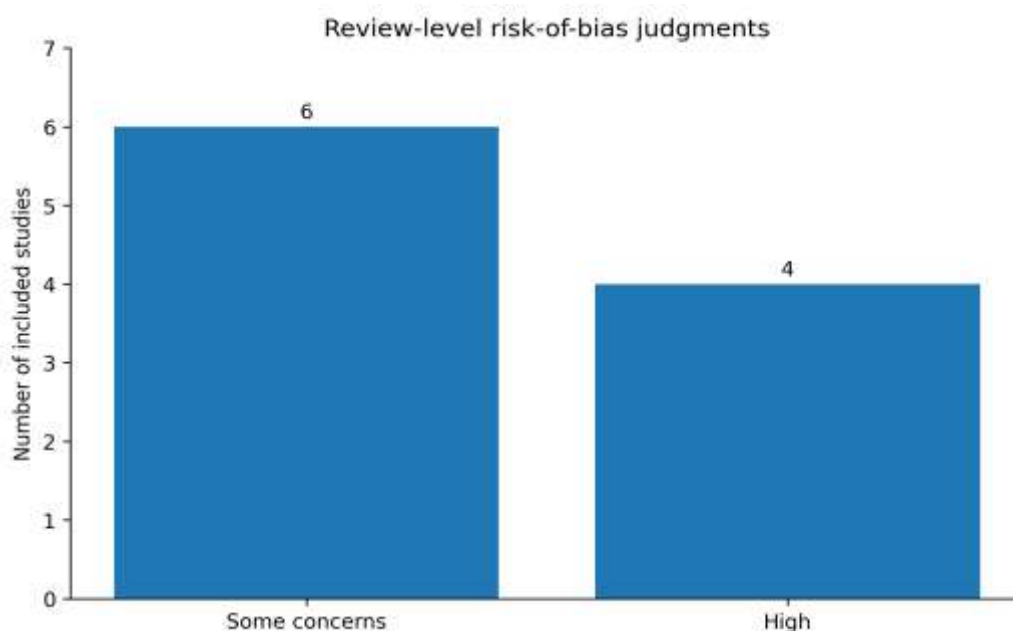


Figure 4. Distribution of review-level risk-of-bias judgments across the 10 included studies.

Search-source coverage analysis

Application of the GRADE principles resulted in a low level of certainty in the pooled functional effect due to imprecision, indirectness across functional constructs, and reconstructions of two effect estimates. Certainty for global QoL was very

low/inconclusive due to measures and estimands being heterogeneous, and several results being noncomparative. Fewer than 10 comparable studies reported on the pooled outcome, which precluded informative publication-bias tests. The overall risk-of-bias judgements are shown in the review-level distribution in Figure 4.

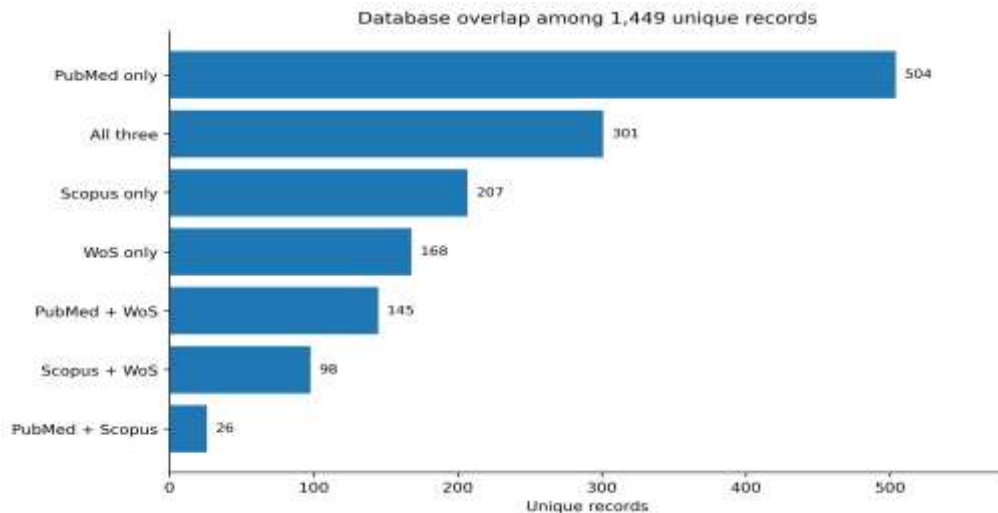


Figure 5. Database-source overlap among the 1,449 unique records screened after the 2016–2026 restriction and deduplication.

The deduplicated screening set covered the full review period, increasing from 97 unique records in 2016 to 164 in 2026; 157 records were retrieved for 2025. These counts describe search-set composition by publication year rather than a trend in intervention effectiveness. Figure 6 shows the publication-year distribution of the deduplicated screening set.

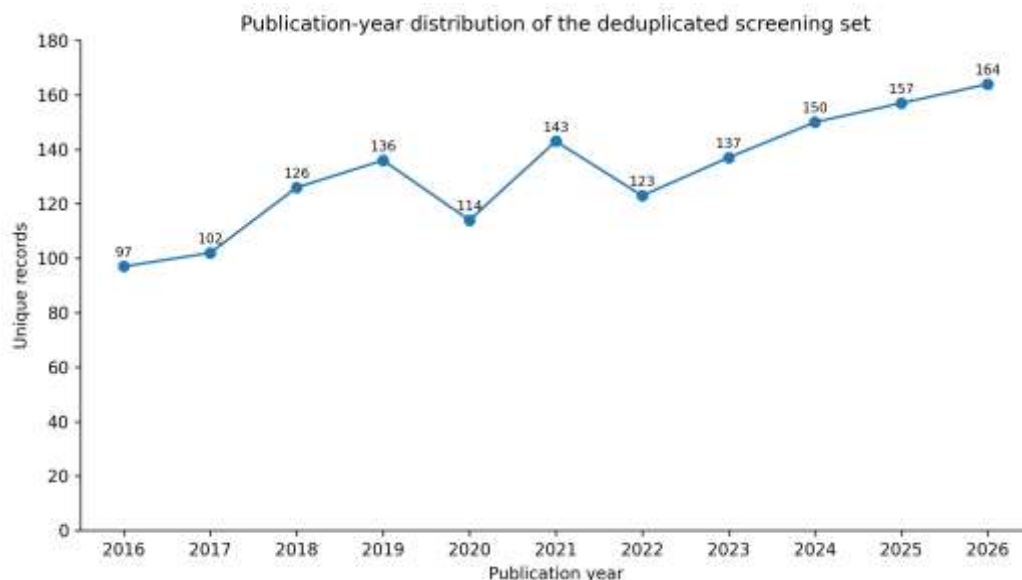


Figure 6. Publication-year distribution of the 1,449 unique records in the deduplicated screening set.

5. DISCUSSION

This review identified a small-to-moderate positive point estimate for functional outcomes of nursing-relevant mental-health interventions, which, however, was statistically indeterminate following conservative small-k inference. The three-study meta-analysis yielded a Hedges' $g = 0.34$ and no evidence of statistical heterogeneity but the modified Hartung–Knapp interval crossed the null. A community psychiatric-nursing IMR program reported significantly better social/global functioning (Tan et

al., 2017) but variance-bearing statistics were not reported and so were not suitable for standardization. The most distinct pooled signal was nurse-led CAT which specifically addressed daily functioning.

The overall results are similar to those of previous syntheses. Overall, Goh et al. (2023) found that superiority of Illness Management and Recovery programs over existing care is inconsistent and, for some, limited in recovery, functioning, and QoL. The positive result in the Tan et al. study demonstrates that IMR can enhance functioning in a community psychiatric-nursing setting, but it failed to change the overall complexion of the pattern of heterogeneous effects. Similarly, Winsper et al. (2020) highlighted that recovery-focused interventions work via skills, therapeutic alliance, recovery role model, and choice and that recovery effects are influenced by context and implementation. The present review builds on that research by demonstrating that function-based nursing interventions can be translated into clinically meaningful gains but whole recovery programs are not always effective at improving all functional domains.

The results of QoL are also conservative. No significant and lasting intervention-specific overall global QoL benefit was seen with CARE, and Housing First showed a benefit for psychological well-being and autonomy but not for overall S-QoL. Passley-Clarke (2019) found improvements in patient-perceived QoL after the nurse-led inpatient recovery education, but there was no similar pre/post QoL effect to estimate the size of the effect. These patterns raise the concern that global QoL indices may miss changes in domains and positive noncomparative results may not be equivalent to controlled effects. This aligns with previous research on recovery where personal recovery, functioning and QoL are shown to be interrelated yet are different constructs (Leendertse et al., 2021; Tjaden et al., 2021).

The review also helps to clarify what might be reasonably defined as a mental-health-nursing intervention. CAT, HospitalitY, the Singapore IMR program, inpatient recovery education and psychiatric-nursing IMR were explicit intervention models that included nurses, while other models, such as CARE, Housing First and ACT-based care were multidisciplinary. These studies are still applicable, as nurses were integrated into recovery-oriented delivery and multidisciplinary programs did not include nursing alone. Future trials should be described in such a way as to enable adequate inferences regarding the nursing dose, competencies, fidelity, and division of responsibilities.

There are a number of limitations that limit the conclusions. Three of the studies reported compatible effects for functional meta-analysis, two of the standardized effects were reconstructed, and one controlled functional study was not pooled because arm-level variance statistics were not reported. Three included evaluations did not have a strong concurrent comparison for the target outcome, such as the postimplementation only QoL assessment in Passley-Clarke (2019). There were still too many heterogeneous QoL instruments and estimands. A possible 2026 trial could not be retrieved. The two other studies retrieved from PubMed also exhibited partial statistical analysis making their quantitative extraction limited and also adding uncertainty to the evidence base.

Despite this, the review has several strengths. The search was performed in Scopus, PubMed and Web of Science; no availability filter was applied in PubMed, and deduplication was performed using DOI, PMID and normalized-title. QoL and functioning were conceptually separated and overstatement of sparse evidence was avoided by taking a conservative small-k random-effects approach. When nurses provide structured interventions, recovery-oriented nursing is most likely to be effective for practice, in terms of incorporating recovery principles into functional skills for everyday life, shared goals for collaborative work, and ongoing support for self-management.

6. CONCLUSION

Interventions in mental health nursing within a recovery framework are demonstrating a positive but less certain trend towards enhanced functioning in severe mental illness. The most impressive results were for the more structured function-focused approaches (across the 10 included studies), where a more explicit delivery of nursing was more likely to have a larger impact and broader service-level models had smaller or mixed effects. The three-study meta-analysis indicated a small to moderate functional benefit (Hedges' $g = .34$), with a very wide and null-crossing modified Hartung–Knapp confidence interval. Narrative evidence from a community psychiatric-nursing IMR program and nurse-facilitated inpatient recovery education was supportive but neither reported a compatible effect estimate that would have resulted in a different pooled analysis. QoL results were again quite varied, with better results demonstrated in some domains or in uncontrolled evaluations than as a consistent global effect. These results support recovery-oriented nursing as a clinically plausible model but do not demonstrate a consistent effect across interventions. Future research should focus on sufficiently powered comparative designs, the extent of nursing contribution in

the intervention, reporting variance-bearing statistics to estimate the effect of recovery-oriented nursing more precisely, intervention fidelity, and harmonized QoL and functional outcomes.

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Appendix A. Search Strategies

Scopus. The following search was used with TITLE-ABS-KEY and a 2016–2026 publication-year restriction. The outcome block was omitted to maximize sensitivity because QoL and functional outcomes may be reported under instrument-specific names or secondary outcomes.

TITLE-ABS-KEY(

(
 "severe mental illness" OR "serious mental illness" OR "severe mental disorder*" OR

"serious mental disorder*" OR "persistent mental illness" OR

"severe and persistent mental illness" OR SMI OR schizophrenia OR schizophren* OR

psychosis OR psychotic OR "psychotic disorder*" OR "schizophrenia spectrum" OR

"bipolar disorder*" OR "major depressive disorder" OR "major depression"

)

AND

(
 "recovery-oriented" OR "recovery oriented" OR "recovery-focused" OR "recovery focused" OR

"recovery-based" OR "recovery based" OR "personal recovery" OR "recovery model" OR

"recovery approach" OR "recovery-oriented care" OR "recovery focused care" OR

"recovery-oriented practice" OR "recovery focused practice" OR "recovery intervention*" OR

"recovery program*" OR "recovery programme*" OR "recovery support" OR "recovery planning" OR

"recovery management" OR "recovery process" OR "recovery intervention" OR "recovery practice" OR

"recovery service*" OR "recovery-oriented service*"

)

AND

(
 nurs* OR "mental health nurse*" OR "psychiatric nurse*" OR "community mental health nurse*" OR

"mental health nursing" OR "psychiatric nursing" OR "nursing care" OR "nursing intervention*" OR

"nursing practice" OR "nurse-led" OR "nurse led" OR "nurse-delivered" OR "nurse delivered" OR
"nurse-facilitated" OR "nurse facilitated" OR "mental health care" OR "psychiatric care" OR
"community mental health" OR "mental health service*"

)

)

PubMed. The search combined MeSH terms and Title/Abstract terms, was restricted to 2016–2026, and was run without abstract/full-text availability filters. The search returned 977 records.

(

"Mentally Ill Persons"[Mesh] OR "Mental Disorders"[Mesh] OR "Schizophrenia"[Mesh] OR
"Schizophrenia Spectrum and Other Psychotic Disorders"[Mesh] OR "Bipolar Disorder"[Mesh] OR
"Depressive Disorder, Major"[Mesh] OR "severe mental illness"[Title/Abstract] OR
"serious mental illness"[Title/Abstract] OR "severe mental disorder"[Title/Abstract] OR
"severe mental disorders"[Title/Abstract] OR "serious mental disorder"[Title/Abstract] OR
"serious mental disorders"[Title/Abstract] OR "severe and persistent mental illness"[Title/Abstract] OR
"persistent mental illness"[Title/Abstract] OR SMI[Title/Abstract] OR schizophren*[Title/Abstract] OR
psychosis[Title/Abstract] OR psychotic[Title/Abstract] OR "psychotic disorder"[Title/Abstract] OR
"psychotic disorders"[Title/Abstract] OR "bipolar disorder"[Title/Abstract] OR
"bipolar disorders"[Title/Abstract] OR "major depressive disorder"[Title/Abstract] OR
"major depression"[Title/Abstract]

)

AND

(

"Recovery of Function"[Mesh] OR "Psychiatric Rehabilitation"[Mesh] OR
"recovery-oriented"[Title/Abstract] OR "recovery oriented"[Title/Abstract] OR
"recovery-focused"[Title/Abstract] OR "recovery focused"[Title/Abstract] OR
"recovery-based"[Title/Abstract] OR "recovery based"[Title/Abstract] OR
"personal recovery"[Title/Abstract] OR "recovery model"[Title/Abstract] OR
"recovery approach"[Title/Abstract] OR "recovery-oriented care"[Title/Abstract] OR
"recovery oriented care"[Title/Abstract] OR "recovery-oriented practice"[Title/Abstract] OR
"recovery oriented practice"[Title/Abstract] OR "recovery-focused care"[Title/Abstract] OR
"recovery intervention"[Title/Abstract] OR "recovery interventions"[Title/Abstract] OR
"recovery program"[Title/Abstract] OR "recovery programs"[Title/Abstract] OR
"recovery programme"[Title/Abstract] OR "recovery programmes"[Title/Abstract] OR
"recovery support"[Title/Abstract] OR "recovery planning"[Title/Abstract] OR
"recovery management"[Title/Abstract] OR "recovery service"[Title/Abstract] OR

"recovery services"[Title/Abstract] OR "psychiatric rehabilitation"[Title/Abstract] OR

"psychosocial rehabilitation"[Title/Abstract]

)

AND

(

"Psychiatric Nursing"[Mesh] OR "Nursing Care"[Mesh] OR "Nurses"[Mesh] OR

nurs*[Title/Abstract] OR "mental health nurse"[Title/Abstract] OR "mental health nurses"[Title/Abstract] OR

"psychiatric nurse"[Title/Abstract] OR "psychiatric nurses"[Title/Abstract] OR

"community mental health nurse"[Title/Abstract] OR "community mental health nurses"[Title/Abstract] OR

"mental health nursing"[Title/Abstract] OR "psychiatric nursing"[Title/Abstract] OR

"nursing care"[Title/Abstract] OR "nursing intervention"[Title/Abstract] OR

"nursing interventions"[Title/Abstract] OR "nurse-led"[Title/Abstract] OR "nurse led"[Title/Abstract] OR

"nurse-delivered"[Title/Abstract] OR "nurse delivered"[Title/Abstract] OR

"nurse-facilitated"[Title/Abstract] OR "nurse facilitated"[Title/Abstract] OR

"community mental health"[Title/Abstract] OR "mental health care"[Title/Abstract] OR

"psychiatric care"[Title/Abstract] OR "mental health service"[Title/Abstract] OR

"mental health services"[Title/Abstract]

)

Web of Science. The search was run in the Topic field (TS) and restricted to the prespecified 2016–2026 publication window, yielding 712 records for deduplication and screening.

TS=(

(

"severe mental illness" OR "serious mental illness" OR "severe mental disorder*" OR

"serious mental disorder*" OR "persistent mental illness" OR

"severe and persistent mental illness" OR SMI OR schizophren* OR schizophrenia OR

psychosis OR psychotic OR "psychotic disorder*" OR "schizophrenia spectrum" OR

"bipolar disorder*" OR "major depressive disorder" OR "major depression"

)

AND

(

"recovery-oriented" OR "recovery oriented" OR "recovery-focused" OR "recovery focused" OR

"recovery-based" OR "recovery based" OR "personal recovery" OR "recovery model" OR

"recovery approach" OR "recovery-oriented care" OR "recovery oriented care" OR

"recovery-focused care" OR "recovery focused care" OR "recovery-oriented practice" OR

"recovery oriented practice" OR "recovery-focused practice" OR "recovery focused practice" OR

"recovery intervention*" OR "recovery program*" OR "recovery programme*" OR
"recovery support" OR "recovery planning" OR "recovery management" OR "recovery process" OR
"recovery practice" OR "recovery service*" OR "recovery-oriented service*" OR
"psychiatric rehabilitation" OR "psychosocial rehabilitation"
)
AND
(
nurs* OR "mental health nurse*" OR "psychiatric nurse*" OR "community mental health nurse*" OR
"mental health nursing" OR "psychiatric nursing" OR "nursing care" OR "nursing intervention*" OR
"nursing practice" OR "nurse-led" OR "nurse led" OR "nurse-delivered" OR "nurse delivered" OR
"nurse-facilitated" OR "nurse facilitated" OR "mental health care" OR "psychiatric care" OR
"community mental health" OR "mental health service*" OR "community mental health service*" OR
"psychiatric service*" OR "mental health team*" OR "community mental health team*")
)