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PROPORTION OF INDIVIDUALS WITH SCHIZOPHRENIA SPECTRUM DISORDERS REPORTING PERSONAL RECOVERY AND FACTORS ASSOCIATED WITH PERSONAL RECOVERY – A SCOPING REVIEW

ABSTRACT

***Objective**: The aim of this scoping review was to collate evidence on the proportion of individuals with SSD reporting personal recovery and to identify factors associated with personal recovery.* ***Method**: This scoping review was executed in accordance with the JBI methodology for scoping reviews. Searches were conducted in Scopus and Ovid Medline in January and May of 2026. Studies were included with a study population of schizophrenia spectrum disorders (SSD), personal recovery measured with a designated measure and the proportion of participants reporting personal recovery. A quality appraisal of the included studies was performed with the JBI critical appraisal tool for Analytical Cross-Sectional studies. Results were synthesized through narrative analysis, as a weighted mean of the proportion of participants personally recovered and as a median recovery rate.* ***Results**: Seven studies, published between 2006 and 2026, met the inclusion criteria. Three different instruments to measure personal recovery were utilized in the included studies. The weighted mean proportion of individuals reporting personal recovery was 27%, ranging from 15%–83%. Six out of seven studies also analysed factors associated with personal recovery, including demographic factors, psychiatric symptoms and functioning. The quality of the studies included in the review was moderate; no study received an excellent rating and one study was rated as poor.* ***Conclusion**: Proportion of individuals with SSD experiencing personal recovery vary. Personal recovery is an important factor to consider in overall recovery and treatment of persons with SSD. More research evidence and standard thresholds are needed for personal recovery. Research on personal recovery remains limited, including in Finland, highlighting the need for further research in the Finnish context.*

KEYWORDS: SCHIZOPHRENIA, SCHIZOAFFECTIVE DISORDER, RECOVERY, ASSOCIATION, REVIEWS

INTRODUCTION

Severe mental illness (SMI) has been reported to cause a substantial human and financial burden globally (1). Schizophrenia Spectrum Disorders (SDDs) are SMIs and among the most common psychotic disorders (2,3). They affect individuals´ functioning (1), social inclusion (2), employment outcomes (3) and quality of life (4,5). Prognosis of SSDs varies individually, in relation to phase of disorder, age, and depending on which outcomes are being measured (6–8). Clinical recovery in SMIs is typically defined by symptom remission, improved functioning or a combination of these outcomes (9–11), whereas personal recovery emphasizes an individual's ability to lead a meaningful and satisfying life despite the presence of symptoms (12,13). Definitions and measures of recovery in SSD differ greatly (6) and rates of clinical recovery vary from 14% to 38% depending on the proposed criteria and time range (6,14,15).

The recovery orientation is a framework used in social and healthcare that originated from the human rights movement, combining theories of psychology and social sciences (16). As opposed to clinical recovery which focuses more on the removal of symptoms, personal recovery can be viewed as the ultimate goal of recovery orientation (17). Personal recovery is defined as a unique, individual and non-linear change process of skills, feelings, values, attitudes and with the key idea of living a satisfying life despite the limitations possibly caused by the illness (18). There is no consensus for the definition

of personal recovery, stemming from its individual nature and sensitivity to cultural differences (19). However, the CHIME framework is one of the most widely accepted for conceptualizing personal recovery and has been applied in both clinical and research settings (13,20). CHIME comprises five recovery processes: Connectedness, Hope, Identity, Meaning in life and Empowerment (21). The framework has demonstrated its utility in understanding personal recovery, with a systematic review of qualitative studies showing that approximately 70% of personal recovery narratives could be accounted for by these recovery processes (22).

Interest in the concept of personal recovery within SSD research and clinical practice has increased substantially in recent years. However, empirical evidence on the extent of personal recovery and its related determinants among individuals with SSD remains scarce. Differences in how personal recovery is conceptualized and measured, together with considerable heterogeneity across study populations and settings, make it difficult to draw firm conclusions regarding the proportion of persons reporting personal recovery and associated factors (20). In contrast, clinical remission and recovery are widely studied in SSD research (10,23). Multiple self-report questionnaires have been developed to assess personal recovery. A recent review identified a total of 25 such instruments (24). Commonly used measures include the Recovery Assessment Scale (RAS) (25), the Questionnaire about the Process of Recovery (QPR) (26,27), the Stages of Recovery Instrument (STORI) (28) and the Mental Health Recovery Measure (MHRM) (29). Despite personal recovery being important for the individuals diagnosed with SSD and their significant others, and the increased interest on the topic (30,31), particularly in Finland research on personal recovery remains limited.

Given the conceptual diversity of personal recovery, the variety of measurement instruments and the heterogeneity of the available evidence, a scoping review was considered the most appropriate approach for mapping the existing literature. Scoping reviews are particularly suitable for topics characterized by conceptual diversity, methodological variability and heterogeneous evidence that cannot be adequately addressed through more narrowly defined systematic reviews. Such reviews enable the mapping of existing research, identification of knowledge gaps and formulation of directions for future studies (32).

The aim of this study was to estimate the proportion of individuals with SSD reporting personal recovery and examine factors associated with personal recovery. The research questions were the following:

a. What is the proportion of individuals with SSD reporting personal recovery and what instruments are used to measure personal recovery?
b. What factors have been examined in relation to personal recovery, and what associations have been reported in the literature included in the review?

The results of this scoping review can support clinical practice, future research and the development of interventions promoting personal recovery.

METHODS

The scoping review was conducted in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews (32) and reported following the PRISMA guidelines for Scoping Reviews (33).

SEARCH STRATEGY

Searches were made from two electronic databases, Scopus and Ovid Medline, using relevant search and MESH terms described in detail in *Table 1*. Scopus and Ovid Medline were chosen due to covering multiple disciplines (e.g. medicine, health sciences, psychology, social sciences). We conducted an initial search on January 15, 2026 and a supplementary search on May 11, 2026. Initial search was done as part of the Bachelor of Medicine thesis (done during the first year of medical studies in University of Oulu). A second, supplementary search was conducted with slightly broader search terms to ensure the identification of all relevant studies. Electronic search was accompanied by a non-systematic manual search from the full texts of the studies included in the scoping review. Manual searching did not include systematically checking all reference lists nor citation tracking. Grey literature was not included.

Table 1. Search strategy and search terms for a scoping review on personal recovery in schizophrenia

Database	Search terms	Number of references
Initial search Jan 15, 2026		
Scopus	(TITLE-ABS-KEY ((person* OR "patient-based" OR "consumer-based" OR subjective*) W/2 (recovery OR rehabilitation OR remission)) AND TITLE-ABS-KEY (schizo*) AND TITLE-ABS-KEY ((prevalence OR incidence OR epidemiology OR occurrence OR frequency OR rate) OR (predictor* OR correlate* OR "influencing factor*" OR "associat* factor*" OR contributor*)) AND NOT TITLE-ABS-KEY ("meta-analysis" OR "review")) AND (LIMIT-TO (LANGUAGE , "English"))	141
Ovid Medline	(TITLE-ABS-KEY ("serious mental ((((person or "patient-based" or "consumer-based" or subjective).ab,kf,ti. adj3 (exp Rehabilitation/ or exp Psychiatric Rehabilitation/ or (recovery or rehabilitation or remission).ab,kf,ti.)) and ((exp Schizophrenia, Disorganized/ or exp Schizophrenia, Treatment-Resistant/ or exp "Schizophrenia Spectrum and Other Psychotic Disorders"/ or exp Schizophrenia, Paranoid/ or exp Schizophrenia, Catatonic/ or exp Schizophrenia, Childhood/ or exp Schizophrenia/) or ("schizo".ab,kf,ti.)) and (exp Prevalence/ or exp Incidence/ or exp Epidemiology/ or ((prevalence or incidence or epidemiology or occurrence or frequency or rate).ab,kf,ti.) or ((predictor or correlate or "influencing factor" or "associat factor" or contributor*).ab,kf,ti.))) and english.lg) not ((review or meta-analysis).pt. or (review or meta-analysis).ti.)	266
Supplementary search May 11, 2026		
Scopus	(TITLE-ABS-KEY ((perso* OR subjective OR psychological) W/2 recovery) AND TITLE-ABS-KEY (schizo*)) AND (LIMIT-TO (LANGUAGE , "English")) AND (EXCLUDE (DOCTYPE , "re"))	460
Ovid Medline	(((person OR psychological OR subjective) ADJ3 recovery) AND schizo*) NOT (review.pt. OR meta-analysis.pt.) AND english.lg) producing a total of 104 references.	104
		Total 833

Abbreviations: CI=Confidence Interval, HR=Hazard Ratio

INCLUSION AND EXCLUSION CRITERIA

For inclusion in this scoping review, studies were required to meet the following criteria: a) primary empirical articles written in English, b) reporting the proportion of participants reporting personal recovery, c) ≥80% of the study participants having a diagnosis of SSD (schizophrenia spectrum disorder including schizophrenia, schizoaffective disorder and schizophreniform disorder), d) personal recovery being measured with an instrument specifically designed for this purpose (24).

The exclusion criteria were as follows: a) articles that were not primary empirical studies (for example, review articles, commentaries or letters to the editor), b) qualitative or case studies, c) articles written in any other language than English, d) studies reporting personal recovery only as a mean or median of the sample (not reporting proportion of individuals reporting personal recovery), e) >20% of the participants with a diagnosis other than SSD, f) personal recovery measured using other instruments not specifically designed for assessing personal recovery, e.g. a quality of life measure.

STUDY SELECTION

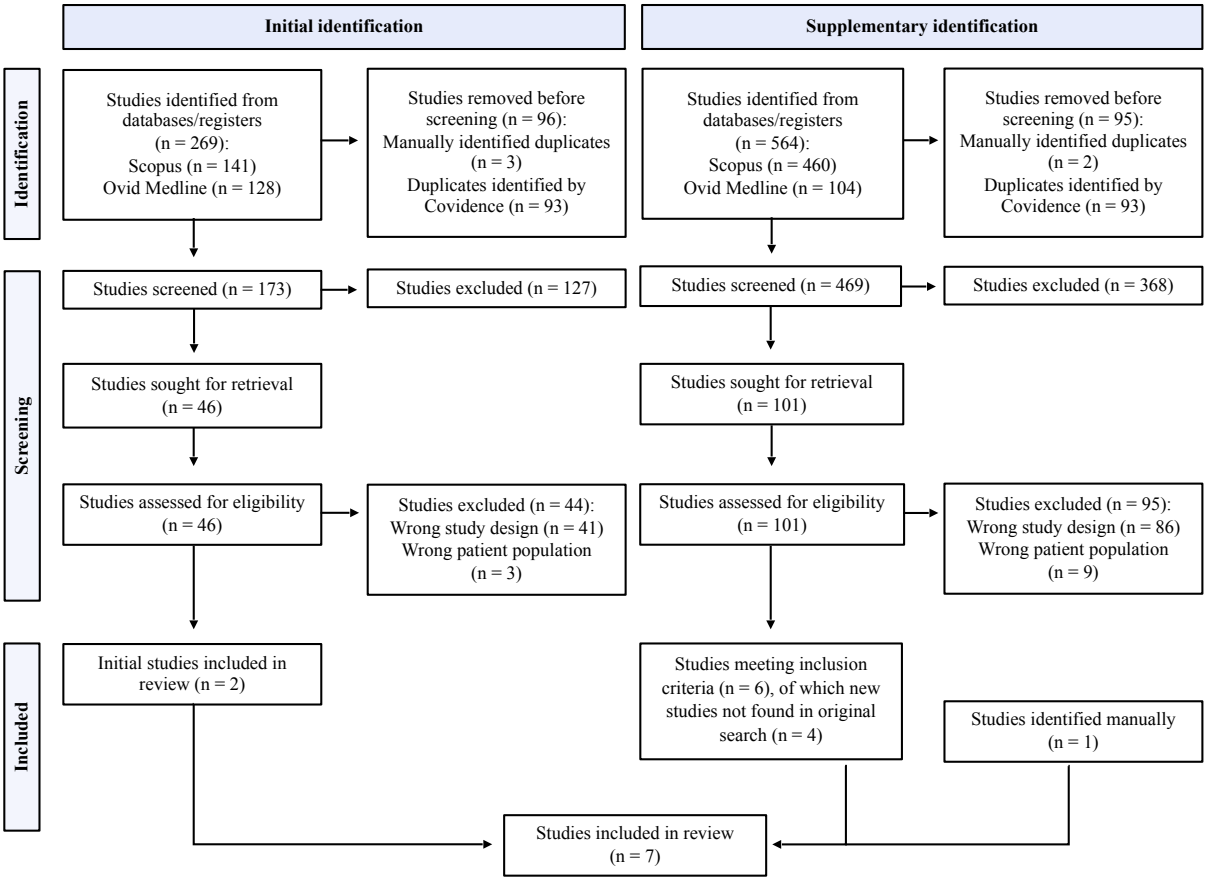
In the first search, two independent reviewers (IK, LL) conducted the title/abstract screening and full-text screening against the eligibility criteria in Covidence. Covidence is a web-based collaboration software platform that streamlines the production of systematic and other literature reviews (34). Disagreements were resolved by a third reviewer (EJ).

A supplementary search was subsequently conducted using broader search terms. The broader search strategy resulted in a substantially larger number of records being identified, compared with the initial search. This difference reflects the wider range of search terms applied in the supplementary search rather than any changes to the review objectives or eligibility criteria. Records identified in the supplementary search were compared

with those from the initial search using DOI identifiers, and duplicates were removed. Given that the supplementary search was primarily intended to identify additional studies not captured in the initial search, the screening process was conducted by a single reviewer (JT or EJ). Eligibility decisions were discussed among the reviewers whenever uncertainty arose. The workload was divided between reviewers (JT, ET), with each reviewer screening approximately 50% of the records at both the title and abstract and the full-text review stages.

Finally, a non-systematic manual search was conducted from the full texts of the included studies. Any additional studies identified were assessed for eligibility through full-text screening. The search and study selection process is presented in PRISMA flow diagram in *Figure 1*.

Figure 1. PRISMA flow diagram. The search and study selection process



DATA EXTRACTION AND SYNTHESIS

Data extraction was conducted collaboratively by three reviewers (IK, LL, JT) using a structured form. Extracted data included: a) authors, b) year of publication, c) country of origin, d) data collection period, e) sample size and diagnosis of participants, f) the instrument and threshold used to assess personal recovery, g) proportion of participants who achieved personal recovery, h) associated factors and i) comments. Data on the study setting and average duration of illness were extracted if reported.

The results are presented through a weighted mean recovery rate, median recovery rate and narrative synthesis of factors associated with personal recovery, and tables that correspond to the objectives of this scoping review. These methods were selected in accordance with JBI guidance for scoping reviews (32). The weighted mean recovery rate was calculated to account for differences in study sample sizes by dividing the total number of recovered individuals in all studies by the total sample size across studies, while the median recovery rate was determined from the distribution of study-level percentages as the central value. One study was rated as low quality in the quality assessment and was therefore excluded in a sensitivity analysis for the weighted mean recovery rate, to evaluate its potential influence on the weighted recovery estimate.

QUALITY ASSESSMENT OF THE STUDIES

The quality assessment of the studies was done with the JBI critical appraisal tool for Analytical Cross-Sectional studies which includes eight items rated ´yes`, ´no` and ´not applicable` (35).The assessment was done in pairs of researchers so that each pair assessed approximately 50% of the studies (IK & EJ 4 studies; LL & JT 3 studies), results and disagreements were discussed and settled by pairs (IK & EJ; LL & JT), and all together if needed. The quality of the study did not affect inclusion in this review.

ETHICAL APPROVAL

Ethical approval was not required because the study was a scoping review based on existing published data. This study was done in accordance with Declaration of Helsinki (36) and Finnish guidance on responsible research (37).

RESULTS

SEARCH RESULTS AND STUDY SELECTION

The search and selection process is illustrated in *Figure 1*. The initial search yielded 269 studies and the supplemental search 564 studies (in total 833, *Table 1*) and 642 studies were retained after duplicates were removed. The larger number of records identified in the supplementary search was attributable to the broader search terms used. In the supplemental search, retained studies were compared to the initial search results and 100 duplicate studies were removed. After title and abstract screening, 147 studies were assessed for eligibility. 139 studies were excluded, and the reasons for exclusion were wrong study design and wrong patient population. Six studies met the eligibility criteria and were included in the review. Finally, we conducted a manual search from the studies included in the review for possible new eligible studies to be included in the scoping review, and found one new study to be included in the review. A total of seven studies were included in the scoping review.

DESCRIPTION OF THE INCLUDED STUDIES

The two searches yielded seven studies, and their study characteristics are presented in *Table 2*. Studies were published between 2006-2026. There was one Randomized Controlled Trial (RCT) (38), one cohort study (39) and five cross-sectional studies (28,40–43). Two studies were conducted in France (39,40), two in China (38,43), one in Spain (42), one in Australia (28) and one in United Kingdom (41). The sample sizes varied between 94 and 1239 participants. Two studies reported the average duration of illness, which was 10.23 years (39) and 18.23 years (28). Five studies (38–40,42,43) reported that the participants were receiving outpatient care and two studies reported that some of the participants were receiving outpatient care and some inpatient care (28,41).

Table 2. Summary of studies (n=7) included in the scoping review

Authors, Year, Country	Study design and purpose	Study characteristics	Instrument used to assess personal recovery; threshold	Proportion of personally recovered participants n (%)	Factors associated with personal recovery 0 = no association + = positive association – = negative association	Comments
Andresen et al. (2006), Australia (28)	Cross-sectional study; the aim of the study was to examine the validity of the STORI, first, as a measure of the recovery construct and second, as a measure of the stages of recovery	The data collection period was not reported; n=94 (schizophrenia diagnosis); the average duration of illness 18.23 years; outpatient and inpatient sample	STORI; participants who were classified in stage 4 (rebuilding) or stage 5 (growth) met the criteria for personal recovery	78 (83.0%)	Age 0 Age at onset 0 Gender 0 Country of birth 0 Duration since diagnosis 0 More time since last inpatient treatment + Length of last inpatient treatment 0 Higher education level +	–
Best et al. (2020), United Kingdom (41)	Cross-sectional study; the aim of the study was to examine differential predictors of personal and functional recovery in psychosis	Data collection 2007–2016; n=857 (schizophrenia or other psychotic disorder); outpatient and inpatient sample	QPR-15; participants who scored at least 45 points met the criteria for personal recovery	124 (14.5%)	Age 0 Gender 0 Positive symptoms 0 Lower level of negative symptoms + Lower level of depressive symptoms + Higher level of disorganized symptoms + Higher level of excitement symptoms + Lower level of emotional distress of hallucinations and delusions + Cognitive interpretation of hallucinations and delusions 0 Physical symptom characteristics hallucinations 0 Better functioning +	The data in this study was combined from four different studies (three cognitive behavioural therapy trials, one study on the process of recovery). Majority of participants were treatment-seeking. Inclusion criteria for the clinical trials included active psychotic symptomatology. In this case most of the sample would not qualify for symptomatic recovery which might influence the results of personal recovery

Authors, Year, Country	Study design and purpose	Study characteristics	Instrument used to assess personal recovery; threshold	Proportion of personally recovered participants n (%)	Factors associated with personal recovery 0 = no association + = positive association – = negative association	Comments
Chu et al. (2026), China (38)	A 12-year follow-up of RCT on early intervention; the aim was to systematically examine rates and predictors of symptomatic remission, functional recovery, personal recovery, clinical recovery and full recovery at 12-year follow-up	The data collection period was not reported; n=103 (SSD diagnosis); outpatient sample	QPR-15; participants who scored at least 45 points at 12-year follow-up met the criteria for personal recovery	52 (50.5%)	Age 0 Age of onset 0 Gender 0 Duration of untreated psychosis 0 Medication adherence 0 Use of second-generation antipsychotics 0 Inpatient treatments 0 Lower level of premorbid schizoid and schizotypal traits + Premorbid adjustment 0 Insight 0 Lower level of positive symptoms at baseline + Positive symptoms at follow-up 0 Negative symptoms at baseline 0 Lower level of negative symptoms at follow-up + Lower level of depressive symptoms at baseline + Depressive symptoms at follow-up 0 Disorganization symptoms at baseline 0 Lower level of disorganized symptoms at follow-up + Lower level of excitement symptoms at baseline + Excitement symptoms at follow-up 0 Better psychosocial functioning + Education level 0 Employment +	All the participants were registered in the EASY programme, which only treated individuals aged 15-25 years. Therefore, these findings may not be generalizable to older patient populations. In addition, the attrition bias (a total of 54 participants were lost to follow-up at the 12-year assessment) may contribute to an overestimation of remission and recovery rates
Dubreucq et al. (2021), France (40)	Cross-sectional study; the aim of the study was to investigate sex differences in objective and subjective aspects of recovery and psychiatric rehabilitation needs in a multicentre psychiatric rehabilitation SSD sample	Data collection 1/2016 – 11/2019; n=519 (SSD diagnosis); outpatient sample	STORI; participants who were classified in stage 4 (rebuilding) or stage 5 (growth) met the criteria for personal recovery	304 (58.6%)	Gender 0	The participants were mostly men (74.4%)

Authors, Year, Country	Study design and purpose	Study characteristics	Instrument used to assess personal recovery; threshold	Proportion of personally recovered participants n (%)	Factors associated with personal recovery 0 = no association + = positive association – = negative association	Comments
Dubreucq et al. (2022), France (41)	Cohort study with a 1-year follow-up; the aim of the study was to examine the overlap and mutual distinctions between clinical and personal recovery	Data collection 2010 – 2019; n=1239 (SSD diagnosis); average duration of illness 10.23 years; outpatient sample	STORI; participants who were classified in stage 4 (rebuilding) or stage 5 (growth) met the criteria for personal recovery	217 (53.8%)	Gender 0 Age at onset 0 Lower level of depressive symptoms + Insight 0 Cognition 0 Better quality of life + Better clinical recovery +	A high proportion of participants (59.1%) were lost to follow-up. However, the participants present at follow-up did not differ at baseline from those lost to follow-up
Lemoz-Giráldez et al. (2015), Spain (42)	Cross-sectional study; the main aim of the study was to examine the psychometric properties of the STORI	Data collection 2011-2012; n=95 (schizophrenia diagnosis or schizoaffective disorder); outpatient sample	STORI; participants who were classified in stage 4 (rebuilding) or stage 5 (growth) met the criteria for personal recovery	58 (61%)	NA	The small sample size was a limitation in this study, especially the small proportion of women (29.5 %)
Yu, Zhou, et al. (2022), China (43)	Cross-sectional study; the aims of the study were to investigate the overlap between clinical and personal recovery and identify correlates of each	Data collection 5/2019 – 9/2019; n=356 (schizophrenia diagnosis); outpatient care	RAS-8; participants who scored at least 32 points met the criteria for personal recovery	62 (17.4%)	Younger age + Younger age at onset + Delayed diagnosis 0 Medication adherence 0 Higher level of psychiatric symptoms – Relationship status 0 Better functioning + Higher educational level + Employment + Lower levels of dangerous behaviour + Better quality of life + Better clinical recovery +	Participants included only those who were registered in the 686 Programme and visited the health centre during the study period. In addition, all the participants were living with their family members in one city in China (Changsha)

Abbreviations: SDD=Schizophrenia Spectrum Disorders, STORI=Stage of Recovery Instrument, RAS-8=8-item short-form version of the Recovery Assessment Scale, QPR–15=The Questionnaire about the Process of Recovery

PERSONAL RECOVERY MEASURES

In the seven included studies, three different measures of personal recovery were identified: the Stage of Recovery Instrument (STORI), the 15-item Questionnaire about the Process of Recovery (QPR-15) and the 8-item short form of the Recovery Assessment Scale (RAS-8). The thresholds and operational definitions of personal recovery varied across these instruments. Personal recovery was defined as stage 4 (rebuilding) or stage 5 (growth) on the STORI (39,40), as a score of ≥45 in the QPR-15 (38) and as a score of ≥32 on the RAS-8 (43). For studies that did not specify a threshold for personal recovery and used the STORI instrument (28,42), the STORI cut-off values proposed by Dubreucq and colleagues (2021) (40) and Dubreucq and associates (39) were applied.

THE RATE OF PERSONAL RECOVERY FROM SSD

In the included studies, the proportion of individuals reporting personal recovery ranged from 14.5% to 83.0% (*Table 2*). The weighted mean recovery rate was calculated across the study populations, which was 27.4%, with the median recovery rate being 50.5%. We conducted a sensitivity analysis for the weighted mean recovery rate, excluding the study of Andresen and colleagues (2006) (28) with a low study quality (*Table 3*). After this amendment the recovery rate was 25.78%.

FACTORS ASSOCIATED WITH PERSONAL RECOVERY

Six of the seven studies included in the scoping review reported factors associated with personal recovery (28,38–41,43). The individual factors and associations varied between studies.

Considering participant characteristics, one study reported that younger age and earlier age at onset were positively associated with personal recovery (43). In contrast, three studies found no association between age (28,38,41), or age at onset of SSD (28,38,39), and personal recovery. Regarding gender, six studies found no association with personal recovery (28,38–41,43).

Greater levels of psychiatric (43), negative (38,41) and depressive symptoms (38,39,41) were negatively associated with personal recovery. Concerning disorganized and excitement symptoms there was contradictory evidence, with studies reporting both negative (38) and positive associations in relation to personal recovery (41). Chu and colleagues (2026) also reported a negative association between baseline positive symptoms and personal recovery (38), whereas another study found no significant association between positive symptoms and personal recovery (41).

Functioning (43) and psychosocial functioning had a positive association with personal recovery (38), as did having

Table 3. Quality appraisal of the studies included in the scoping review based on JBI Critical appraisal Checklist for Analytical Cross-Sectional Studies (29)

Study	Inclusion and exclusion criteria clearly defined	Study subjects and setting described in detail	Reliable and valid exposure measurement	Objective standard criteria for condition measurement	Confounding factors identified	Strategies to deal with confounding factors stated	Reliable and valid outcome measurement	Appropriate statistical analysis used
Andresen et al. 2006	No	No	No	No	No	No	Yes	No
Best et al. 2020	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Chu et al. 2026	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Dubreucq et al. 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dubreucq et al. 2022	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Lemos-Giráldez 2015	Yes	Yes	N/A	Yes	No	No	Yes	Yes
Yu et al. 2022	Yes	Yes	Yes	Yes	No	No	Yes	Yes

Yes
No
N/A = Not applicable

higher education (28,43) and being employed (43). In a 12-year follow-up study of early intervention services, baseline employment was also associated with better personal recovery at follow-up (38). One study found no association between cognitive functioning and personal recovery (39), and two studies reported that insight was not associated with personal recovery (38,39).

Two studies demonstrated associations between clinical recovery and personal recovery (43,44). In a one-year follow-up study, baseline clinical recovery predicted a threefold greater likelihood of personal recovery at follow-up (44). In a cross-sectional study, the correlation between personal and clinical recovery was small (43). Moreover, two studies included in the review examined quality of life as a factor associated with personal recovery and found a positive association between the two constructs (39,43).

RESULTS OF THE QUALITY APPRAISAL

The results of the quality appraisal of the included studies are presented in *Table 3*. The majority of studies (6/7) were rated as being of moderate quality, having received six or more ´yes` or ´not applicable` ratings out of eight items (38–43). None of the studies included in this review achieved an excellent quality rating. One study was rated as poor quality, receiving only one "yes" rating out of eight (28). Several methodological limitations were identified across the included studies. A key limitation was the inadequate identification and management of confounding variables. Notably, two of the eight items in the quality appraisal tool addressed confounding, which had a substantial impact on the overall quality ratings of the studies. Also, two studies demonstrated weaknesses in the reliable and valid measurement of exposures, as defined in the JBI quality appraisal tool (35).

DISCUSSION

The aim of this study was to estimate the proportion of individuals reporting personal recovery and to explore the factors associated with personal recovery in SSD. Only seven studies met the inclusion criteria. The principal finding of the study was that the mean weighted proportion of individuals reporting personal recovery within the study populations was 27%, with a large range of diversion in mean proportions. Most of the studies also reported factors associated with personal recovery, including participant characteristics, psychiatric symptoms and functioning.

A substantial variation in recovery rates was observed (15%–83%) and the distribution of recovery rates was skewed. Smaller studies tended to report markedly higher recovery proportions, whereas larger studies consistently demonstrated lower rates. This discrepancy may indicate potential small-study effects or differences in study populations and methodology. Additionally, the measure of personal recovery may have influenced results, as personal recovery measured with the STORI instrument (28,39,40,42) produced higher recovery rates compared to QPR (38,41) and RAS (43). Following the sensitivity analysis, in which one low-quality study was excluded, the estimated recovery rate decreased from 27% to 26%. This modest change suggests that study quality may have some influence on the results, although its overall impact appears limited.

FACTORS ASSOCIATED WITH PERSONAL RECOVERY - COMPARISON TO PREVIOUS LITERATURE

Evidence is mixed concerning the factors associated with personal recovery among individuals with SSD. In this review, the association of age on personal recovery showed mixed results (28,38,41,43) and gender had no association with personal recovery (28,38–41,43). In previous research, the association of age on personal recovery has shown inconsistent results, with other studies finding younger age (31), and others older age, having an association with personal recovery (45). Regarding the role of gender in personal recovery, previous studies have identified a positive correlation between male gender and improved personal recovery outcomes (46,47). The inconsistent findings may partly reflect methodological differences between studies, for instance, including differences in the operationalization of age and the age or gender distributions of the study samples. They may also suggest that demographic characteristics such as age or gender have a relatively limited influence on personal recovery, which is likely to be shaped more strongly by psychological, social and environmental factors. It has also been proposed that the current treatment of SSD might not target personal recovery efficiently (31).

Previous research has consistently indicated that positive symptoms of psychotic disorders are not associated with personal recovery (48–50), which is also consistent with the findings of the present review; only one of the included studies reported a significant association at baseline (38). In contrast, this review reinforces earlier evidence demonstrating an association between depressive and negative symptoms and personal recovery (38,39,41), as also reported in previous literature (30,50,51).

Several explanations may account for these findings. One plausible interpretation is that affective symptoms have a more pronounced impact on an individual's capacity to experience hope, engage in social relationships and maintain everyday functioning than positive psychotic symptoms. Hope, social connectedness and a sense of meaning in life are central components of personal recovery (19) and are therefore likely to be more directly influenced by depressive symptomatology. This interpretation is further supported by evidence demonstrating a positive association between personal recovery and functional outcomes, also shown in this review (38,43).

Associations between quality of life and personal recovery have been widely reported (31,45,52). However, despite their correlation, these constructs appear to have partially distinct determinants (52) and reflect different dimensions (45). One study included in this review, Yu, Zhou, et al. (2022), identified quality of life as the only factor associated with both clinical and personal recovery (43). There is also some evidence suggesting that improvements in both personal recovery and quality of life may be less pronounced than improvements in clinical (symptomatic) recovery (8,31). Since personal recovery does not improve to the same extent as clinical recovery, interventions specifically targeting personal recovery would be needed.

Even though a substantial body of evidence exists on factors associated with personal recovery in SSD, the findings are often contradictory (28,31,38–41,43). Future research would benefit from a systematic review focusing specifically on these associated factors. Such a review should assess not only the direction but also the strength of associations through effect size estimates, and should consider methodological quality of the included studies when interpreting and weighting the results. This would enhance our understanding of personal recovery and support the development of mental health services and interventions aimed at promoting personal recovery. In addition, future research should more carefully consider the influence of cultural factors on personal recovery and its associated determinants.

CLINICAL IMPLICATIONS

A substantial proportion of studies were excluded during the screening process because personal recovery was operationalized as a continuous construct, typically reported as a mean score of personal recovery scale, and not presenting the proportion of individuals experiencing personal recovery (46,53). This is understandable given the inherently individual and dynamic nature of personal recovery, which is often conceptualized as a subjective and evolving process. Such approaches are valuable, as they enable the identification of factors associated with personal recovery and provide insight into how recovery develops and fluctuates over time among individuals with SSD. However, when measured solely as a continuous variable, these findings may be challenging to translate into clinical practice, for example in psychoeducation or service planning, as well as into population-level research. Therefore, there is also a need to categorize personal recovery in a meaningful way, while at the same time acknowledging the importance of qualitative approaches in capturing its complexity.

Notably, despite the growing body of research evidence, personal recovery remains under-represented in clinical guidelines. For instance, neither Finnish Current Care guidelines for schizophrenia treatment (54) nor recent international guidelines (55) explicitly address personal recovery outcomes. This highlights an important gap between research and clinical practice, and underscores the need to more fully integrate personal recovery into treatment frameworks. Ideally treatment for SSD should be tailored to the individual by developing a shared care plan together with the person and their family members, using shared or supported decision-making approaches (56,57). Emerging evidence also suggests that certain interventions, such as peer-support interventions (58,59) and recovery colleges can improve personal recovery among individuals with mental illness (60). In this context, it is important to consider personal recovery as a meaningful goal that healthcare service providers can actively support, as well as an important outcome to be considered in intervention research.

In a qualitative follow-up study of individuals with first-episode psychosis, which was not included in the present review, participants emphasized the importance of the temporal dimension of personal recovery, particularly in terms of accepting change across the life course. For example, participants recognized that it is not possible to maintain control over all aspects of life, and that personal agency plays a central role in the recovery process. In contrast, clinical recovery may be perceived as a more standardized, "one-size-fits-all" approach, in which recovery is defined by the mental health services and service providers rather than by individuals with SMI themselves (61). Therefore, in light of both the findings of this review and previous literature, efforts to promote personal recovery in clinical practice are essential, particularly as identifying factors that support personal recovery may inform the development of targeted interventions. For instance, the evidence suggests focusing on affective symptoms of SSD may be more beneficial for personal recovery, for instance, via interventions targeting emotional regulation (30,38,39,41,50,62). It is also noteworthy

that promoting personal recovery may, in turn, facilitate clinical recovery (43,44). Furthermore, a more precise understanding of personal recovery and its associated factors enables more effective communication with individuals with SSD, their significant others and mental health service providers.

CONSIDERATIONS ON THE QUALITY OF THE STUDIES

The overall methodological quality of the included studies was moderate, with none achieving an excellent rating. Several common limitations were identified, particularly related to the inadequate identification and management of confounding variables, which substantially influenced overall quality ratings. Only one study appropriately addressed confounding, while others either failed to identify relevant confounders or applied incomplete strategies to control for them. Two studies demonstrated weaknesses in the reliable and valid measurement of exposures. However, in certain cases, this limitation may reflect broader issues related to measurement consistency. Dubreucq et al. (2022) reported that data were collected across multiple treatment sites without employing procedures to ensure inter-site reliability (39). This limitation may affect the consistency of measurements overall and may be particularly relevant for outcome assessment. Notably, more recent studies (38,39) generally received higher quality ratings compared to older studies (28).

Recovery in schizophrenia has been studied for several decades, yet its conceptualization remains methodologically challenging. In particular, clinical, functional, social and complete recovery have been defined in numerous ways, with no universally accepted operational definition (7,49,63,64). Personal recovery is a more recent concept that emphasizes an individual's subjective experience of living a meaningful and satisfying life despite the limitations imposed by mental illness (18,21). However, personal recovery also lacks a single, universally accepted definition (19,20) and a gold standard measurement instrument (24). Furthermore, cultural factors may influence how personal recovery is experienced and interpreted (65). Existing studies have applied different conceptual frameworks and a variety of assessment tools to measure personal recovery, contributing to substantial methodological heterogeneity across the literature. This variability complicates comparisons between studies, limits the synthesis of findings, and may partly explain inconsistencies in the reported associations between potential determinants and personal recovery. These methodological considerations should therefore be taken into account when interpreting the findings of the present review. Future research should prioritize rigorous methodological approaches, including the clear identification and control of confounding variables and the use of reliable and standardized measurement procedures.

STRENGTHS AND LIMITATIONS

A major strength of this study is its focus on the proportion of persons reporting personal recovery in SSD, for which the existing evidence base remains limited and no previous review has been conducted. This scoping review followed systematic and predefined methods, adhering to the JBI methodology for scoping reviews (32), the JBI critical appraisal tool for Analytical Cross-Sectional studies was used for quality assessment (35) and reporting in accordance with the PRISMA Extension for Scoping Reviews guidelines (33). However, knowledge user consultation was not included in this review, although it is recommended in scoping review methodology (66). Such consultation could have enhanced the relevance and applicability of the findings by incorporating perspectives from stakeholders, such as service users and clinicians, by supporting the translation of results into practice.

Several limitations should also be considered. In the initial search the title and abstract screening was conducted by two independent reviewers and disagreements were resolved by a third reviewer. However, in the supplementary search reviewers split the screening of the search results and discussed obscurities, as this search was primarily intended for identifying new studies. Nevertheless, this can be seen as a limitation. Quality appraisal of the included studies was conducted by two independent reviewers, and consensus discussions were held. These factors reduced the risk of assessment errors and increased the reliability of our study findings.

A major limitation of this review is that the literature search was restricted to two electronic databases. Although these databases provide extensive coverage of the relevant literature, searching additional databases might have identified further eligible studies and increased the comprehensiveness of the review. Furthermore, grey literature was not included in this review, even though it might have provided additional relevant data on personal recovery. However, due to resource limitations, this review was limited to peer-reviewed studies in accordance with its objectives. Further limitations include the fact that the reference lists of the included studies were not searched nor forward citation tracking performed. In addition, the exclusion of qualitative studies, which could have provided a broader understanding of personal recovery, represents a limitation; however, expanding the study objectives further would have reduced feasibility.

A further limitation is that some studies reported personal recovery only as a sample mean or median rather than as the proportion of individuals reporting personal recovery. As noted previously, several self-report instruments are used to assess personal recovery, and these measures differ to some extent in their content, reliability, validity and the results they produce (24) . Consequently, the inclusion of findings based on different personal recovery measures may have affected the comparability of the results and introduced some uncertainty into the findings of this review. Nevertheless, given the limited evidence available on personal recovery among persons with SSD, we considered it important to include all eligible studies. In addition, the charting form used to summarize the extracted data was not piloted or calibrated prior to data extraction. Finally, although factors associated with personal recovery were identified and summarized, the strength of these associations was not reported in this review.

CONCLUSION

In conclusion, while personal recovery has been extensively studied in the context of severe mental disorders, research focusing specifically on personal recovery among individuals with SSD is still called for. To date, no studies have been conducted in Finland. Furthermore, the context of personal recovery in SSD has been studied only to a limited extent, and the findings of the existing studies vary considerably. The proportion of individuals reporting personal recovery in SSD was found to be approximately one quarter, most studies also reported on associations between different factors and personal recovery. This considerable variability is likely due to the small number of included articles and therefore the small amount of available data, as well as the individual limitations of the studies, which may have biased the findings. In addition, the study samples differ greatly from one another. To achieve more consistent and comparable results in the future, it would be necessary to create meaningful reference values of personal recovery. Further research is needed on individuals reporting personal recovery in SSD and the factors influencing this, in order to obtain more reliable and generalizable knowledge. Such information would provide a stronger basis for developing treatment practices and could thereby promote personal recovery for persons with SSD.

Funding

The authors declare that this study received no external funding.

Declaration of competing interests

The authors declare no conflicts of interests.

CRediT authorship contribution statement

Iiris Kämäräinen: Investigation, Validation, Formal Analysis, Writing – Original draft and review & editing, Visualization. Lotta Lehmusvuori: Investigation, Validation, Formal Analysis, Writing – Original draft and review & editing. Tuomas Majuri: Writing – Original draft and review & editing, Visualization. Erika Jääskeläinen: Conceptualization, Writing – Review & editing, Supervision. Jonna Tolonen: Conceptualization, Methodology, Formal Analysis, Investigation, Validation, Writing – Original draft and review & editing, Visualization, Supervision.

Disclosure of AI Use

The authors used an AI-based language model to support the research process. The tool was utilized for language editing, clarification of methodological concepts, assistance with data handling (e.g. Excel-based comparisons and calculations) and literature identification. All outputs were critically reviewed and verified by the authors, who take full responsibility for the content of the manuscript.

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References

1. Killaspy H, Harvey C, Brasier C, Brophy L, Ennals P, Fletcher J, et al. Community-based social interventions for people with severe mental illness: a systematic review and narrative synthesis of recent evidence. World Psychiatry. 2022 Feb 1;21(1):96–123. doi:10.1002/wps.20940 PubMed PMID: 35015358.

2. Henderson C, Kotera Y, Lloyd-Evans B, Jordan G, Gorner M, Salla A, et al. Social inclusion of people with severe mental illness: a review of current practices, evidence and unmet needs, and future directions. World Psychiatry. 2026 Feb 14;25(1):56–82. doi:10.1002/wps.70031

3. Majuri T, Alakokkare AE, Haapea M, Nordström T, Miettunen J, Jääskeläinen E, et al. Employment trajectories until midlife in schizophrenia and other psychoses: the Northern Finland Birth Cohort 1966. Soc Psychiatry Psychiatr Epidemiol. 2022 Jul 7. doi:10.1007/s00127-022-02327-6 PubMed PMID: 35796815.

4. Dong M, Lu L, Zhang L, Zhang YS, Ng CH, Ungvari GS, et al. Quality of Life in Schizophrenia: A Meta-Analysis of Comparative Studies. Psychiatric Quarterly. 2019 Sep 22;90(3):519–32. doi:10.1007/s11126-019-09633-4

5. Attepe Özden S, Tekindal M, Tekindal MA. Quality of Life of people with Schizophrenia: A meta-analysis. International Journal of Social Psychiatry. 2023 Sep 7;69(6):1444–52. doi:10.1177/00207640231164019

6. Huxley P, Krayer A, Poole R, Prendergast L, Aryal S, Warner R. Schizophrenia outcomes in the 21st century: A systematic review. Brain Behav. 2021 Jun 1;11(6). doi:10.1002/BRB3.2172

7. Molstrom IM, Nordgaard J, Urfer-Parnas A, Handest R, Berge J, Henriksen MG. The prognosis of schizophrenia: A systematic review and meta-analysis with meta-regression of 20-year follow-up studies. Schizophr Res. 2022 Dec;250:152–63. doi:10.1016/j.schres.2022.11.010

8. de Winter L, Jelsma A, Vermeulen JM, Vellinga A, van Weeghel J, Hasson-Ohayon I, et al. Interrelationships of Changes in Outcome Domains in Patients With Schizophrenia Spectrum Disorders: A Meta-Analysis. Acta Psychiatr Scand. 2025 Jul 30;152(1):6–26. doi:10.1111/acps.13808

9. Andreasen NC, Carpenter WT, Kane JM, Lasser RA, Marder SR, Weinberger DR. Remission in schizophrenia: Proposed criteria and rationale for consensus. American Journal of Psychiatry. 2005. p. 441–9. doi:10.1176/appi.ajp.162.3.441 PubMed PMID: 15741458.

10. Ponce-Correa F, Caqueo-Urízar A, Berrios R, Escobar-Soler C. Defining recovery in schizophrenia: A review of outcome studies. Psychiatry Res. 2023 Apr;322:115134. doi:10.1016/j.psychres.2023.115134

11. Færden A, Nesvåg R, Marder SR. Definitions of the Term 'Recovered' in Schizophrenia and Other Disorders. Psychopathology. 2008;41(5):271–8. doi:10.1159/000141921

12. Anthony WA. Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. Psychosoc Rehabil J. 1993 Apr;16(4):11–23. doi:10.1037/h0095655

13. Bird V, Leamy M, Tew J, Le Boutillier C, Williams J, Slade M. Fit for purpose? Validation of a conceptual framework for personal recovery with current mental health consumers. Australian & New Zealand Journal of Psychiatry. 2014 Jul 10;48(7):644–53. doi:10.1177/0004867413520046

14. Jääskeläinen E, Juola P, Hirvonen N, McGrath JJ, Saha S, Isohanni M, et al. A systematic review and meta-analysis of recovery in schizophrenia. Schizophr Bull. 2013 Nov;39(6):1296–306. doi:10.1093/schbul/sbs130 PubMed PMID: 23172003.

15. Warner R. Recovery from schizophrenia: psychiatry and political economy. Routledge and Kegan Paul.; 1985. 1–380 p.

16. Nordling E, Rissanen P. Työpaperi 40/2020 Mielenterveystyö uudistuu Toipumisorientaation teoreettiset lähtökohdat [Internet]. 2020 [cited 2021 May 7]. Available from: https://www.julkari.fi/handle/10024/140792

17. Le Boutillier C, Leamy M, Bird VJ, Davidson L, Williams J, Slade M. What Does Recovery Mean in Practice? A Qualitative Analysis of International Recovery-Oriented Practice Guidance. 2011 Dec;62(12):1470–6. doi:10.1176/appi.ps.001312011

18. Anthony WA. Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. Psychosoc Rehabil J. 1993 Apr;16(4):11–23. doi:10.1037/h0095655

19. Tolonen J, Kiviniemi L, Moilanen K, Jääskeläinen E. Henkilökohtaisen toipumisen käytännön työn mallien käyttökelpoisuus mielenterveystyössä. Lääketieteellinen Aikakausikirja Duodecim. 2026;142(2):141–8.

20. van Weeghel J, van Zelst C, Boertien D, Hasson-Ohayon I. Conceptualizations, assessments, and implications of personal recovery in mental illness: A scoping review of systematic reviews and meta-analyses. Psychiatr Rehabil J. 2019 Jun;42(2):169–81. doi:10.1037/prj0000356

21. Leamy M, Bird V, Le Boutillier C, Williams J, Slade M. Conceptual framework for personal recovery in mental health: systematic review and narrative synthesis. Br J Psychiatry. 2011 Dec;199(6):445–52. doi:10.1192/BJP.BP.110.083733 PubMed PMID: 22130746.

22. Stuart SR, Tansey L, Quayle E. What we talk about when we talk about recovery: a systematic review and best-fit framework synthesis of qualitative literature. Journal of Mental Health. 2017 May 4;26(3):291–304. doi:10.1080/09638237.2016.1222056

23. Huxley P, Krayer A, Poole R, Prendergast L, Aryal S, Warner R. Schizophrenia outcomes in the 21st century: A systematic review. Brain Behav. 2021 Jun 1;11(6). doi:10.1002/BRB3.2172

24. Felix S, Valery KM, Caiada M, Guionnet S, Bonilla-Guerrero J, Destaillats JM, et al. Personal recovery self-report outcome measures in serious mental illness: A systematic review of measurement properties. Clin Psychol Rev. 2024 Aug;112:102459. doi:10.1016/j.cpr.2024.102459

25. Corrigan PW, Salzer M, Ralph RO, Sangster Y, Keck L. Examining the Factor Structure of the Recovery Assessment Scale. Schizophr Bull. 2004 Jan 1;30(4):1035–41. doi:10.1093/oxfordjournals.schbul.a007118

26. Law H, Neil ST, Dunn G, Morrison AP. Psychometric properties of the Questionnaire about the Process of Recovery (QPR). Schizophr Res. 2014 Jul;156(2–3):184–9. doi:10.1016/j.schres.2014.04.011

27. Williams J, Leamy M, Pesola F, Bird V, Boutillier C Le, Slade M. Psychometric evaluation of the Questionnaire about the Process of Recovery (QPR). British Journal of Psychiatry. 2015 Dec 2;207(6):551–5. doi:10.1192/bjp.bp.114.161695

28. Andresen R, Caputi P, Oades L. Stages of Recovery Instrument: Development of a Measure of Recovery from Serious Mental Illness. Australian & New Zealand Journal of Psychiatry. 2006 Nov 17;40(11–12):972–80. doi:10.1080/j.1440-1614.2006.01921.x

29. Armstrong NP, Cohen AN, Hellemann G, Reist C, Young AS. Validating a Brief Version of the Mental Health Recovery Measure for Individuals With Schizophrenia. 2014 Sep;65(9):1154–9. doi:10.1176/appi.ps.201300215

30. Leendertse JCP, Wierdsma AI, van den Berg D, Ruissen AM, Slade M, Castelein S, et al. Personal Recovery in People With a Psychotic Disorder: A Systematic Review and Meta-Analysis of Associated Factors. Front Psychiatry. 2021 Feb 23;12. doi:10.3389/fpsyt.2021.622628

31. de Winter L, Jelsma A, Vermeulen JM, van Weeghel J, Hasson-Ohayon I, Mulder CL, et al. Long-term Changes in Personal Recovery and Quality of Life Among Patients With Schizophrenia Spectrum Disorders and Different Durations of Illness: A Meta-analysis. Schizophr Bull. 2024 Dec 20;51(1):37–53. doi:10.1093/schbul/sbae045

32. Peters MD, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil H. Scoping reviews. JBI Manual for Evidence Synthesis. 2024. doi:10.46658/JBIMES-24-09

33. Tricco AC, Lillie E, Zarin W, O KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–73. doi:10.7326/M18-0850

34. Veritas Health Innovation. Covidence systematic review software [Internet]. [cited 2026 Aug 6]. Available from: https://covidence.org

35. Moola S, Mattis P, Lisy K, Mu P-F., Munn Z, Tufanaru C, et al. Chapter 7: Systematic reviews of etiology and risk . In: Aromataris E, Munn Z, editors. JBI Manua for Evidence Synthesis [Internet]. 2020 [cited 2024 May 7]. Available from: https://synthesismanual.jbi.global

36. World Medical Association. World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. Bull World Health Organ. 2001;79(4):373–4. PubMed PMID: 11357217.

37. Finnish National Board on Research Integrity TENK. The ethical principles of research with human participants and ethical review in the human sciences in Finland. Finnish National Board on Research Integrity TENK guidelines 2019. [Internet]. Helsinki; 2019 [cited 2024 May 14]. Available from: https://tenk.fi/sites/default/files/2021-01/Ethical_review_in_human_sciences_2020.pdf

38. Chu RST, Fung VSC, Lei JHC, Wong GHS, Chan SKW, Lee EHM, et al. Rate and predictors of remission and recovery in first-episode psychosis: A 12-year follow-up of randomized-controlled trial on early intervention. Mol Psychiatry. 2026 Apr 12;31(4):2365–75. doi:10.1038/s41380-025-03409-y

39. Dubreucq J, Gabayet F, Godin O, Andre M, Aouizerate B, Capdevielle D, et al. Overlap and Mutual Distinctions Between Clinical Recovery and Personal Recovery in People With Schizophrenia in a One-Year Study. Schizophr Bull. 2022 Mar 1;48(2):382–94. doi:10.1093/SCHBUL/SBAB114 PubMed PMID: 34718808.

40. Dubreucq M, Plasse J, Gabayet F, Blan O, Chereau I, Cervello S, et al. Sex Differences in Recovery-Related Outcomes and Needs for Psychiatric Rehabilitation in People With Schizophrenia Spectrum Disorder. J Clin Psychiatry. 2021 Jul 1;82(4). doi:10.4088/JCP.20M13732 PubMed PMID: 34010524.

41. Best MW, Law H, Pyle M, Morrison AP. Relationships between psychiatric symptoms, functioning and personal recovery in psychosis. Schizophr Res. 2020 Sep 1;223:112–8. doi:10.1016/j.schres.2020.06.026 PubMed PMID: 32620428.

42. Lemos-Giráldez S, García-Alvarez L, Paino M, Fonseca-Pedrero E, Vallina-Fernández O, Vallejo-Seco G, et al. Measuring stages of recovery from psychosis. Compr Psychiatry. 2015 Jan;56:51–8. doi:10.1016/j.comppsych.2014.09.021

43. Yu Y, Zhou W, Shen M, Wang Y, Xiao S, Tebes JK. Clinical and personal recovery for people with schizophrenia in China: prevalence and predictors. Journal of Mental Health. 2022;31(2):263–72. doi:10.1080/09638237.2021.2022635 PubMed PMID: 35014917.

44. Dubreucq J, Gabayet F, Godin O, Andre M, Aouizerate B, Capdevielle D, et al. Overlap and Mutual Distinctions Between Clinical Recovery and Personal Recovery in People With Schizophrenia in a One-Year Study. Schizophr Bull. 2022 Mar 1;48(2):382–94. doi:10.1093/schbul/sbab114

45. Owusu E, Mao W, Shalaby R, Elgendy HE, Agyapong B, Eboreime E, et al. Resilience, personal recovery, and quality of life for psychiatric in-patients prior to hospital discharge: demographic and clinical determinants. Front Psychiatry. 2025 May 23;16. doi:10.3389/fpsyt.2025.1494493

46. Ferrara M, Zaffarami G, Simonelli G, Domenicano I, Vecchioni L, Toffanin T, et al. Dimensions and predictors of clinical and personal recovery in first-episode psychoses: Results from a cross-sectional study. Early Interv Psychiatry. 2024 Feb 6. doi:10.1111/eip.13513

47. Yu Y, Shen M, Niu L, Liu Y e, Xiao S, Tebes JK. The relationship between clinical recovery and personal recovery among people living with schizophrenia: A serial mediation model and the role of disability and quality of life. Schizophr Res. 2022 Jan;239:168–75. doi:10.1016/j.schres.2021.11.043

48. Austin SF, Hjorthøj C, Baagland H, Simonsen E, Dam J. Investigating personal and clinical recovery processes in people with first episode psychosis. Early Interv Psychiatry. 2022 Oct 25;16(10):1102–11. doi:10.1111/eip.13258

49. Ponce-Correa F, Caqueo-Urízar A, Berrios R, Escobar-Soler C. Defining recovery in schizophrenia: A review of outcome studies. Psychiatry Res. 2023 Apr;322:115134. doi:10.1016/j.psychres.2023.115134

50. Van Eck RM, Burger TJ, Vellinga A, Schirmbeck F, De Haan L. The Relationship Between Clinical and Personal Recovery in Patients With Schizophrenia Spectrum Disorders: A Systematic Review and Meta-analysis. Schizophr Bull. 2018 Apr 6;44(3):631–42. doi:10.1093/schbul/sbx088 PubMed PMID: 29036720.

51. Jørgensen R, Zoffmann V, Munk-Jørgensen P, Buck KD, Jensen SOW, Hansson L, et al. Relationships over time of subjective and objective elements of recovery in persons with schizophreni. Psychiatry Res. 2015 Jul;228(1):14–9. doi:10.1016/j.psychres.2015.03.013

52. Skar-Fröding R, Clausen HK, Šaltytė Benth J, Ruud T, Slade M, Sverdvik Heiervang K. The Importance of Personal Recovery and Perceived Recovery Support Among Service Users With Psychosis. 2021 Jun;72(6):661–8. doi:10.1176/appi.ps.202000223

53. Antens MHH, Kamperman AM, van Aken BC, Castelein S, Mulder CL. Intellectual functioning and personal recovery in individuals with schizophrenia spectrum disorder. Schizophr Res. 2026 Aug;294:76–85. doi:10.1016/j.schres.2026.04.015

54. Suomalaisen Lääkäriseuran Duodecimin ja Suomen Psykiatriyhdistys ry:n asettama työryhmä. Skitsofrenia. Käypä hoito -suositus. [Internet]. Helsinki; 2024 Feb [cited 2026 Jun 15]. Available from: https://www.kaypahoito.fi/hoi35050?tab=otakayttoon

55. McCutcheon RA, Pillinger T, Varvari I, Halstead S, Ayinde OO, Crossley NA, et al. INTEGRATE: international guidelines for the algorithmic treatment of schizophrenia. Lancet Psychiatry. 2025 May;12(5):384–94. doi:10.1016/S2215-0366(25)00031-8

56. Kokanović R, Brophy L, McSherry B, Flore J, Moeller-Saxone K, Herrman H. Supported decision-making from the perspectives of mental health service users, family members supporting them and mental health practitioners. Australian & New Zealand Journal of Psychiatry. 2018 Sep 28;52(9):826–33. doi:10.1177/0004867418784177

57. Laureano CD, Laranjeira C, Querido A, Dixe MA, Rego F. Ethical Issues in Clinical Decision-Making about Involuntary Psychiatric Treatment: A Scoping Review. Healthcare. 2024 Feb 9;12(4):445. doi:10.3390/healthcare12040445

58. Poulsen CH, Egmose CH, Ebersbach B, Hjorthøj C, Eplov LF. The “Paths to everyday life” peer support intervention for adults with mental health difficulties versus service as usual in a Danish community setting – results from a randomized two-armed, multi-site, superiority trial. BMC Psychiatry. 2025 Jul 11;25(1):695. doi:10.1186/s12888-025-07011-y

59. Høgh Egmose C, Heinsvig Poulsen C, Hjorthøj C, Skriver Mundy S, Hellström L, Nørgaard Nielsen M, et al. The Effectiveness of Peer Support in Personal and Clinical Recovery: Systematic Review and Meta-Analysis. 2023 Aug 1;74(8):847–58. doi:10.1176/appi.ps.202100138

60. Allard J, Pollard A, Laugharne R, Coates J, Wildfire-Roberts J, Millward M, et al. Evaluating the impact of a UK recovery college on mental well-being: pre- and post-intervention study. BJPsych Open. 2024 May 18;10(3):e87. doi:10.1192/bjo.2023.646

61. O'Keeffe D, Sheridan A, Kelly A, Doyle R, Madigan K, Lawlor E, et al. A qualitative study exploring personal recovery meaning and the potential influence of clinical recovery status on this meaning 20 years after a first-episode psychosis. Soc Psychiatry Psychiatr Epidemiol. 2022 Mar 18;57(3):473–83. doi:10.1007/s00127-021-02121-w

62. Thongyu R, Bhatarasakoon P, Skulphan S, Sethabouppha H. A Causal Model of Personal Recovery Among People with Schizophrenia: A Cross-Sectional Study. Pac Rim Int J Nurs Res Thail. 2025 Sep 10;29(4):714–29. doi:10.60099/prijnr.2025.273106

63. Hansen HG, Starzer M, Nilsson SF, Hjorthøj C, Albert N, Nordentoft M. Clinical Recovery and Long-Term Association of Specialized Early Intervention Services vs Treatment as Usual Among Individuals With First-Episode Schizophrenia Spectrum Disorder. JAMA Psychiatry. 2023 Apr 1;80(4):371. doi:10.1001/jamapsychiatry.2022.5164

64. McGrath J. Dissecting the heterogeneity of schizophrenia outcomes. Schizophrenia Bulletin. 2008. p. 247–8. doi:10.1093/schbul/sbm133 PubMed PMID: 18048379.

65. Slade M, Leamy M, Bacon F, Janosik M, Le Boutillier C, Williams J, et al. International differences in understanding recovery: systematic review. Epidemiol Psychiatr Sci. 2012 Dec 15;21(4):353–64. doi:10.1017/S2045796012000133

66. Pollock D, Alexander L, Munn Z, Peters MDJ, Khalil H, Godfrey CM, et al. Moving from consultation to co-creation with knowledge users in scoping reviews: guidance from the JBI Scoping Review Methodology Group. JBI Evid Synth. 2022 Apr;20(4):969–79. doi:10.11124/JBIES-21-00416