This electronic thesis or dissertation has been downloaded from the King's Research Portal at https://kclpure.kcl.ac.uk/portal/

Service user recovery goals in first episode psychosis: the role of negative symptoms

Craston, Tabs

Awarding institution:
King's College London

The copyright of this thesis rests with the author and no quotation from it or information derived from it may be published without proper acknowledgement.

END USER LICENCE AGREEMENT

Unless another licence is stated on the immediately following page this work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International licence. https://creativecommons.org/licenses/by-nc-nd/4.0/

You are free to copy, distribute and transmit the work

Under the following conditions:

- Attribution: You must attribute the work in the manner specified by the author (but not in any way that suggests that they endorse you or your use of the work).
- Non Commercial: You may not use this work for commercial purposes.
- No Derivative Works - You may not alter, transform, or build upon this work.

Any of these conditions can be waived if you receive permission from the author. Your fair dealings and other rights are in no way affected by the above.

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 12. Jan. 2025

Volume I

Systematic Literature Review
Main Empirical Project

Tabitha Craston
Supervised by Dr Matteo Cella and Professor Til Wykes

Submitted in partial fulfilment of the degree of Doctorate in Clinical Psychology at the Institute of Psychiatry, Psychology, and Neuroscience (IoPPN), King's College London
May 2024

Acknowledgments

Thank you to my supervisors Dr Matteo Cella and Professor Til Wykes for your guidance over the last few years, I have been very fortunate to learn from your knowledge and experience. Thank you to Lois Parri and Julia Segerer for your input with categorising, screening and rating. Thank you to the members of the Lived Experience Advisory Panel for your valuable ideas and insights, and to the participants of the CIRCuiTS study. With you, this project would not have been possible. Thank you to the DClinPsy team at IoPPN, and to my placement supervisors, for supporting my learning and development throughout training. Thank you to my clinical tutor, Dr Claire McGoldrick, for your thoughtfulness. Thank you to my fellow trainees, for being an endless source of help and humour. Thank you to my friends, my parents and my sisters, for cheering me on and for always giving me perspective. A special thank you to Leda, for arriving at the perfect time. And finally, thank you to my partner Amit, for everything.

Chapter I

Systematic Review

The impact of psychosocial interventions for schizophrenia on patient-reported outcomes: a systematic review

Tabitha Craston
Supervised by Dr Matteo Cella and Professor Til Wykes

ABSTRACT

Background: Patient-reported outcome measures (PROMs) are increasingly used to evaluate interventions for people with schizophrenia. It is unclear how widely PROMs developed using qualitative participatory research techniques are used in controlled intervention studies. This study aims to provide a narrative synthesis of the extent to which psychosocial interventions for schizophrenia lead to improvements on PROMs developed with input from mental health service users using qualitative participatory research techniques from the start. This study will use a systematic review approach.

Methods: This review was pre-registered and follows PRISMA reporting guidance. Embase, Ovid Medline and APA PsycInfo databases were systematically searched (from inception to August 2023) using search terms related to schizophrenia spectrum disorders, psychosocial interventions, and controlled intervention studies. Studies were screened, and included only if they used PROMs developed using qualitative participatory research techniques. Data were extracted on the intervention type, length, and format (group or individual), control group, sample size, and primary outcome, and the efficacy of the intervention on the PROM outcomes. The Clinical Trials Assessment Measure was used to assess risk of bias. Screening, data extraction and risk of bias assessment were completed for all papers independently by two researchers. Results were summarised narratively according to prespecified topics.

Results: After screening, forty-two independent studies met the inclusion criteria. These reported a range of psychosocial interventions. The studies used thirteen PROMs, measuring mental wellbeing, recovery, quality of life, and self-stigma. PROMs were secondary outcomes in 69% of included studies. There was evidence for interventions considered to reduce self-stigma and internalised stigma. Cognitive behavioural therapy for psychosis (CBTp) was found to improve mental wellbeing and psychological recovery, and there was less clear evidence for CBTp benefits to quality of life and self-stigma. CBT-informed interventions were found to improve patient-chosen recovery outcomes. Neither Metacognitive Training nor Cognitive Remediation was found to improve quality of life, and there was evidence that Integrated Psychological Therapy may reduce quality of life. Studies were generally of moderate to high methodological quality, although 23.8% were considered at high risk of bias.

Discussion: The variety of the interventions considered coupled with the inconsistent use of PROMs limits the scope of generalisations for many of the psychosocial interventions considered. Gold-standard PROMs developed from service user perspectives are not widely used in psychosocial intervention studies, and further use will enable the generation of higher quality evidence. Involvement of service users as collaborators in mental health research should extend to the development of outcome measures.

Table of contents

List of figures and tables

1. Introduction

1.1 Background

Psychosocial interventions are offered in most mental health services caring for people with schizophrenia. They are recommended in clinical guidelines alongside pharmacological interventions. When assessing these interventions, the choice of outcomes is vitally important as it informs both trial design and the development and implementation of health policies (Crawford et al., 2011). The choice of outcome should reflect its theoretical underpinning but can also reflect assumptions about 'what matters' (Thornicroft & Slade, 2014). For example, outcomes may be chosen to reflect the emerging international consensus that services should be recovery-oriented, offering interventions that go beyond the goal of symptom reduction, and lead to improvements in recovery processes as outlined in the CHIME framework: connectedness, hope and optimism, identity, meaning in life, and empowerment (Leamy, Bird, Boutillier, Williams & Slade, 2011). Choosing the most appropriate outcome for psychosocial intervention studies requires consideration of the perspectives of multiple stakeholders, such as service users, family carers, service providers, and members of the public, who may have different views on which outcomes are valuable or important (Perkins, 2001; Thornicroft & Slade, 2014).

1.2 Patient-reported outcomes

Outcomes in intervention trials for people with schizophrenia have historically been clinician-rated measures (e.g. Overall & Gorham, 1962; Haddock, McCarron, Tarrier & Faragher, 1999; Hall, 1995), even for constructs that might be considered more subjective, such as quality of life (Heinrichs, Hanlon & Carpenter, 1984). Over the last few decades, service users have increasingly been seen as active recipients of care, and a more patient-centred approach has developed (Trujols et al., 2013). A patient-reported outcome measure (PROM) captures aspects of a service user's health status (e.g. symptoms, quality of life, functioning) directly from them, without interpretation or rating of their response by a clinician (McCabe, Saidi & Priebe, 2007). The use of PROMS in mental health services is thought to be important to improve communication between service users and providers, and enhances the accountability of services (Roe, Slade & Jones, 2022). A range of PROMs are increasingly used in clinical trials for mental health treatments, covering both clinical and recovery outcomes (Buck et al., 2022; Doward, Gnanasakthy & Baker, 2010; Law, Morrison, Byrne & Hodson, 2012).

1.3 Service user perspectives

An outcome can be patient-reported, and still prioritise the perspectives of researchers, clinicians, or service providers (Rose, Evans, Sweeney & Wykes, 2011; Trujols et al., 2013). Several authors have suggested that for a PROM to be truly service user centred, service users should be involved in the development of the measure beyond providing data in psychometric validation studies (Rose et al., 2011; Staniszewska, Haywood, Brett & Tutton, 2012). A model for doing so has been proposed by the Service User Research Enterprise (SURE) at the Institute of Psychiatry, King's College London, which suggests developing a measure with participatory qualitative research taking place prior to psychometric testing (Rose et al., 2011). Using this approach, service users can be involved in the development of a PROM at several stages, such as identifying domains for measurement, generating and developing items, and ensuring the measure is understandable to respondents (Wiering, de Boer & Delnoij, 2017).

Trujols and colleagues (2013) have proposed a classification system to differentiate the degree to which PROMs incorporate service user perspectives. A patient-generated PROM (PG-PROM) is defined as having been developed from the perspective of mental health service users. The second type is a patient-centred PROM (PC-PROM), which is developed with contributions from mental health service users, but alongside other stakeholders such as clinicians, researchers, and family caregivers. Service users might be involved in the initial stages of identifying dimensions to be measured, or in drafting and evaluating the initial version of the PROM. The third type, a patient-valued PROM (PV-PROM), is developed without direct patient participation. A PROM can only be classified as such if qualitative research methods (such as focus groups or in-depth interviews) indicate that the PROM reflects service user perspectives, or measures constructs that are important to them (Kabir & Wykes, 2010).

Another recent approach to prioritising patient preferences in intervention studies is to have service users choose their own outcomes, that are then standardised to enable comparison between study participants. Examples of this are Psychological Outcome Profiles ‘PSYCHLOPS’

(Czachowski, Seed, Schofield & Ashworth, 2011) or the Goal Attainment Scale (Kiresuk & Sherman, 1968; Turner-Stokes, 2009).

1.4 Current reviews

Multiple reviews have evaluated the impact of psychosocial interventions for people with schizophrenia (McDonagh et al., 2022), on symptoms, wellbeing, and quality of life (McGlanaghy et al., 2021; Valiente, Espinosa, Trucharte, Nieto & Martínez-Prado, 2019). However, to date there is no systematic review evaluating how these interventions impact PROMs with service user involvement in their development.

1.5 Aims & Objectives

This study aims to provide a narrative synthesis of the extent to which psychosocial interventions for schizophrenia lead to improvements on PROMs developed with input from mental health service users using qualitative participatory research techniques from the start. This study will use a systematic review approach.

2. Methods

2.1 Protocol and registration

This review was pre-registered on PROSPERO on 25/04/2023 (registration number: CRD42023393915), an international database of systematic reviews protocol (Booth et al., 2012), and follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance (Page et al., 2021).

2.2 Eligibility criteria

We included controlled studies (e.g. Randomised Controlled Trials) investigating the feasibility, acceptability, and/or effectiveness of a psychosocial intervention. All types of control conditions were considered. We included studies involving participants with non-affective psychosis spectrum diagnoses (e.g. schizophrenia, schizoaffective disorder, brief psychotic disorder, delusional disorder) and excluded studies involving participants with just one specific symptom of psychosis (e.g. ‘voice hearing’) that encompasses multiple diagnostic categories. We excluded studies not reported in English.

The inclusion criteria for the intervention were:

a) Studies using The World Health Organisation definition of psychosocial interventions: a non-pharmacological intervention focused on psychological or social factors, which aims to promote change in symptoms, functioning, quality of life, and social inclusion (Dua et al., 2011).
b) Includes interventions for smoking, alcohol, and drug use.
c) Includes vocational interventions.

The exclusion criteria were:

a) Studies evaluating multicomponent interventions (e.g. Early Intervention in Psychosis services, Assertive Community Treatment).
b) Studies evaluating a preventative intervention in which the outcome was psychosis severity progression (e.g. relapse).
c) Studies evaluating interventions delivered to carers or clinicians in the absence of service users.

The inclusion criteria for the outcome were:

a) A PROM measuring an aspect of a participant’s health status (e.g. symptoms, quality of life, functioning) rated directly from the participant, without interpretation or rating of their response by a clinician.
b) Evidence of validation using psychometric methods, in peer reviewed papers.
c) Evidence of input from people with lived experience of mental health difficulties/mental health service users in the design or development of the PROM, using qualitative participatory research techniques (focus groups and/or interviews).
d) Measures that involve participants choosing the outcome themselves, such as Goal Attainment Scaling.

The exclusion criteria were:

a) Measures developed with input from members of the public, students, or general health service users (while these groups may involve people with lived experience, considering all forms of public and patient involvement is not the focus of this review).
b) Input limited to mental health service users providing comments on the wording, content, or relevance of items after a measure had already been developed by experts/researchers (e.g. as part of a psychometric validation study).
c) The paper outlining the development of the PROM was not in English.

2.3 Search Strategy and information sources

A systematic literature search was carried out using Ovid. The databases searched were Embase (1974 to 2023 August 24), Ovid Medline ® (1946 to August 24, 2023), and APA PsycInfo (1806 to August week 3 2023). Exploded search terms were used alongside key search terms, reflecting inclusion criteria for the population, intervention, and study design. Exploded search terms differed among the databases searched (e.g. 'Psychosis' or 'Schizophrenia' for Embase, 'Psychotic Disorders' for Ovid Medline, and 'Psychosis' for PsycInfo). Details of search terms can be found in Appendix A.

2.4 Selection process

Titles and abstracts for all studies were screened by author TC, with 50% of titles and abstracts screened by researchers LP and JS respectively. The researchers met following abstract and title screening to resolve disagreements. Full-text level screening was done by TC, with 55% of papers screened independently by JS. Where full records could not be accessed, authors were contacted by email to request a full copy of the paper.

2.5 Outcome data selection

In most cases, whether an outcome reported in a study met the inclusion criteria was determined by reviewing the published article on the development and psychometric validation of the original version PROM (usually accessed by reviewing the reference section or by searching the name of the measure), further information was sought (e.g. where the PROM was a revised version of an original version). If a paper reporting on the development or initial validation of a measure could not be located, it was assumed the measure had not been formally validated. If a paper reporting on the development or initial validation of a measure did not report on the use of participatory research techniques in the development of the measure, it was assumed these were not used. Where there was a clinician rated and self-report version of a measure, but the study did not specify which form of the measure was used, the study was excluded.

2.6 Data extraction

For all included papers, the data extraction was independently completed by two authors (TC and LP). Any inconsistencies identified were discussed and rectified. Data extracted for the intervention included: (i) the type of intervention, (ii) the description of the intervention and control groups, (iii) the number of sessions, and length of the intervention, and (iv) whether the intervention was in an individual or group format. Data extracted for the population included: (i) the number of participants in the intervention and control groups, (ii) the diagnostic criteria used for inclusion. Data extracted for the outcome included: (i) the primary outcome of the study (ii) the PROM/s of interest, and (iii) the scales used by the authors, where a PROM was made up of more than one scale. Data was also extracted on: (i) the type of analysis performed on the PROM of interest, (ii) handling of missing data in the analysis, (iii) study follow-up timepoints, and where available (iv) the type of effect size used (e.g. Cohen's d), the effect size, and p-value.

2.7 Methodological rigour of studies

The Clinical Trial Assessment Test (CTAM) was used to assess the methodological rigour of the studies. The CTAM was developed specifically for assessing the quality of trials of psychological treatments in mental health, as other available instruments for assessing trial quality were designed to assess medical or pharmacological trials (Tarrier & Wykes, 2014). The instrument was developed based on a review of 25 trial assessment scales (Moher et al., 1995), and on the CONSORT guidelines (Moher et al., 2001), which were developed to improve the standard of reporting on Randomised Controlled Trials (RCTs) and enable readers to assess the validity of studies. Expert opinion was sought during the development of the CTAM (Tarrier & Wykes, 2014), which has been used in systematic reviews of interventions for people with psychosis (e.g. Cella, Preti, Edwards, Dow & Wykes, 2017; Grant, Lawrence, Preti, Wykes & Cella, 2017; Sedgwick, Hardy, Newbery & Cella, 2021).

The CTAM evaluates six aspects: sample size and recruitment method, allocation to treatment, assessment of outcome, control groups, description of treatment, and analysis. The items on the instrument are differentially weighted based on their influence on the outcome. While it is recommended that studies are evaluated based on the scores for the individual subscales (Lobban et al., 2013), the CTAM does provide an overall score out of 100, with scores below 65 indicating a risk of bias. All included studies were initially rated by TC and LP independently. Disagreement on scores were resolved following discussion between the raters, and with a third rater, MC, where a resolution could not be agreed.

2.8 Data synthesis

A narrative synthesis was used to summarise the data due to significant heterogeneity in the interventions and outcomes of interest. Study findings were grouped according to the intervention, the same approach to data synthesis was used when tabulating the data.

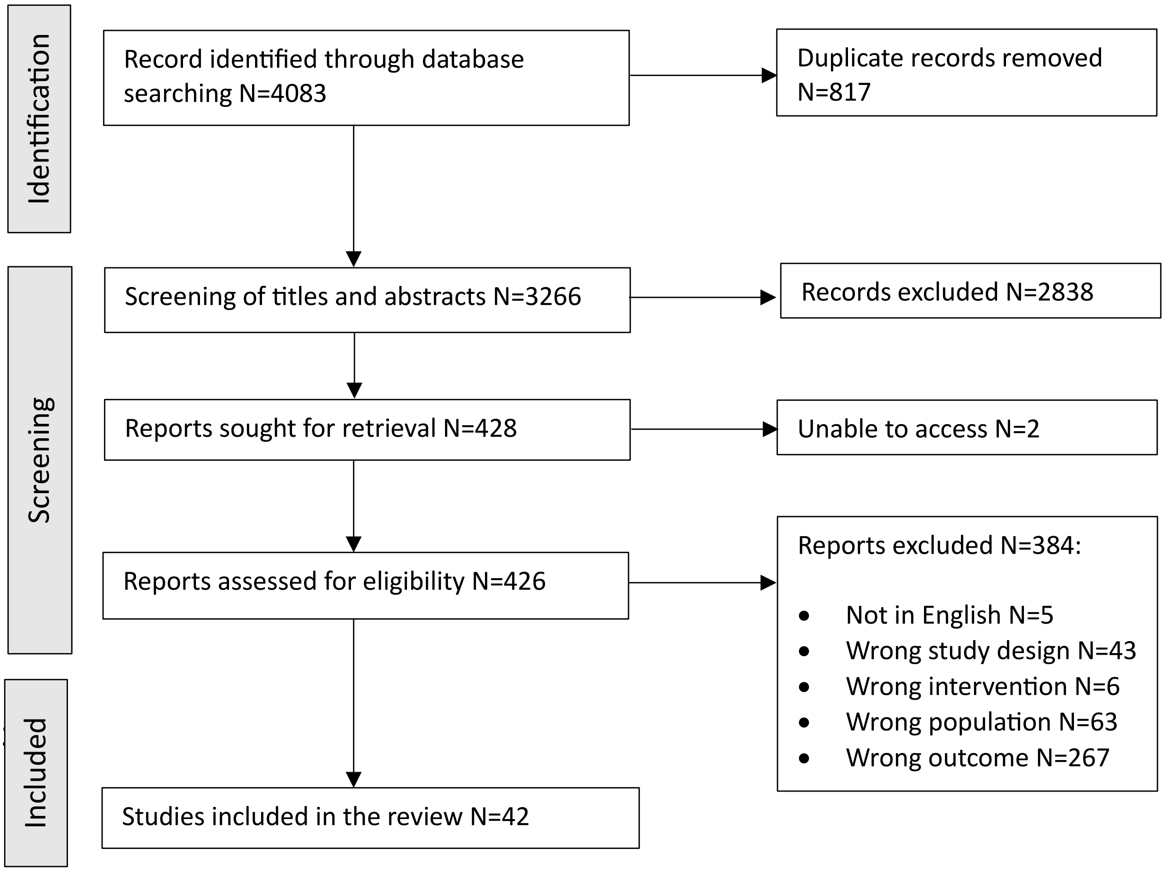
3. Results

3.1 Screening

The literature search yielded 4,083 records: 1,725 from Embase, 1,422 from Medline, and 936 from PsycInfo. Of these 817 were duplicates and were removed. Title/abstract screening was completed using Rayyan, an established systematic review screening tool (Ouzzani, Hammady, Fedorowicz & Elmagarmid, 2016). A total of 3266 records were screened by author TC, with 1636 (50%) screened independently by author LP, and 1630 (50%) screened independently by author JS. The percentage agreement was 92.3% (Cohen's Kappa: 0.68), indicating 'substantial agreement.' The lead author TC met with the raters independently to discuss disagreements, and 428 records were agreed to be eligible for full text screening. Four of these records were not accessible. Contacting the authors via email led to two of these four records being forwarded (one was published 20 years previously and could not be accessed by the authors, the other did not have any associated author contact details available).

In total, 426 full-text records were screened by author TC, with 236 (55%) of these records screened independently by author JS. Of the 426 records screened, 112 (29%) were excluded because they did not meet the inclusion criteria for population, intervention, or study design (details can be found in Figure 1, PRISMA flow diagram). Of the 267 (70%) studies that were excluded because they did not meet the inclusion criteria for the outcome, 117 (44%) did not report on the use of any PROMS, and 149 (56%) reported on PROMS that did not meet the inclusion criteria. This included there being no evidence for service user participation in the development of the measure (beyond providing data in a psychometric validation study), and items being generated by undergraduate samples or general health service users. The final number of original research articles included the review was 42.

Figure 1. PRISMA flow diagram



3.2 Study characteristics

The characteristics of the included studies are summarised in Table 2. Most studies were RCTs (62%) or Pilot and Feasibility RCTs (29%). One study was a crossover RCT, and three studies (7%) had another design (e.g. quasi-experiment, prospective study) and were included due to the presence of a control group. Sample sizes ranged from 24 to 377 and participants were recruited from a mix of inpatient and outpatient settings. Most of the interventions (52%) were delivered individually, 41% were delivered in a group, and three (7%) combined individual and group formats. Interventions were designed to target a range of symptoms and difficulties (e.g. delusions, hallucinations, sleep, self-stigma) and were delivered by therapists, peers, via self-help, or with the use of computer programmes or Virtual Reality (VR).

3.3 Overall study quality

CTAM ratings were completed independently for all studies, and different ratings were resolved through consultation with a third researcher. The mean rating was 70.5 out of a maximum score of 100, and results were variable: 32 studies (76.2%) scored over 65, and the remainder scored below. It is important to note that not all included studies were clinical trials (which the CTAM was designed to assess), and this methodological difference is evident in the CTAM ratings. Overall CTAM ratings for each study can be found in Supplementary Table 1, Appendix B, along with ratings for the different scales.

Table 1. Summary of quality appraisal rated using the CTAM

CTAM score	Number of studies	
90-100	1	≥65 = 32
80-89	14	
70-79	12	
60-69	7	<65 = 10
50-59	3	
40-49	1	
30-39	3	
20-29	0	
10-19	1	
0-9	0	

3.4 Patient-reported outcome measures

Studies included thirteen PROMs that met the inclusion criteria for the outcome, described in detail below. Thirteen studies (31%) used one of these PROMs as the primary outcome measure.

3.4.1 The Warwick Edinburgh Mental Wellbeing Scale

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) (Tennant et al., 2007) has 14 items, and a shorter 7-item version is also available (Koushede et al., 2019). It is comprised of one scale measuring a single underlying construct and contains positively worded items pertaining to positive affect, psychological functioning (e.g. autonomy, self-acceptance) and relationships (Stewart-Brown et al., 2009; Tennant et al., 2007). The WEMWBS has been translated into multiple languages and validated in several populations and in a range of settings (Bass, Dawkin, Muncer, Vigurs & Bostock, 2016; Koushede et al., 2019; Stewart-Brown, 2013; Vaingankar et al., 2017). The WEMWBS was used in nine studies in the current review, and as a primary outcome in two of these studies.

Service user involvement: Nine focus groups were held across England and Scotland, including one with mental health service users. Participants commented a previous measure of wellbeing, Affectometer 2 (Kammann & Flett, 1983), and identified concepts relating to mental well-being. Content analysis of these focus groups informed the key concepts to be covered by the new scale. In addition, in a study in which people with psychosis and affective disorder were asked about their views on commonly used outcome measures, The WEMWBS achieved one of the highest ratings of relevance and acceptability (Crawford et al., 2011).

3.4.2 Choice of outcome in CBT for psychoses (CHOICE)

Choice of outcome in CBT for psychoses (CHOICE) is a measure of psychological recovery (Greenwood et al., 2010). The CHOICE is a 24-item measure with a single psychological recovery factor comprised of two subscales: Severity and Satisfaction (Greenwood et al., 2010). The respondent rates items (e.g. 'The ability to question the way I look at things,' 'self-confidence') on an 11-point scale from 0 (worst) to 10 (best), according to how they have felt over the last week, and a mean score is calculated. A later short-form version, The CHOICE-SF, contains only the Severity scale from the original measure, with 11 items and a single psychological recovery factor (Webb et al., 2021). On both measures, there is an additional item where the service user can identify a personal goal they would like to achieve in therapy, which is rated on the same 11-point scale. The CHOICE was used as a secondary outcome in five studies in the current review.

Service user involvement: The CHOICE was developed by clinicians in the UK, to measure service users' outcomes from CBTp that might not be captured by traditional measures, such as empowerment, control, and personal fulfilment (Greenwood et al., 2010; Perkins, 2001). Service user involvement was integral to the development of the measure at several stages, with semi-structured interviews and focus groups held with service users (Greenwood et al., 2010). The CHOICE was used as a secondary outcome in five studies in the current review.

3.4.3 The Questionnaire about the Process of Recovery (QPR)

The Questionnaire about the Process of Recovery (QPR) is a measure of personal experiences of recovery (Neil et al., 2009). Personal recovery is a term that acknowledges recovery as an ongoing process of personal change that is idiosyncratic to the individual, which may involve re-establishing a positive identity and developing meaning in life (Anthony, 1993). The QPR is a 22-item measure comprised of two scales: the 'Intrapersonal' scale (17 items) relates to things the respondent would need to do to rebuild their life, and the 'Interpersonal' scale (5 items) relates to their perception of their value in the world, and the external processes (including interpersonal relationships) that influence recovery. A shorter version using 15 items from the original measure has also been developed (Law, Neil, Dunn & Morrison, 2014). Respondents indicate their level of agreement with a series of statements (e.g. 'I feel part of society rather than isolated,' 'I can actively engage with life,' 'I can find the time to do the things I enjoy') on a scale from 1 (totally disagree) to 5 (totally agree). The QPR was used as a secondary outcome in two studies in the current review.

Service user involvement: Items on the QPR were generated based on a qualitative study with people with lived experience of psychosis, in which semi-structured interviews were carried out focused on people's experiences of recovery (Pitt, Kilbride, Nothard, Welford & Morrison, 2007). The measure was developed by a team that included two service user researchers, and with the support of a steering committee of 10 service users (Neil et al., 2009).

3.4.4 The Recovery Assessment Scale (RAS)

The Recovery Assessment Scale (RAS) is a measure of personal recovery that was developed in the USA (Giffort, Schmook, Woody, Vollendorf & Gervain, 1995; Corrigan, Giffort, Rashid, Leary & Okeke, 1999). Respondents rate their level of agreement with a series of statements (e.g. ‘I have an idea of who I want to become,’ ‘I can handle what happens in my life’) on a scale from 1 (strongly disagree) to 5 (strongly agree). The 24-item version has been found to be a valid and reliable measure of recovery (Salzer & Brusilovskiy, 2014). Two studies in the current review used the RAS, and one of these studies used the RAS as a primary outcome measure.

Service user involvement: The RAS was developed through participatory research with service users with diagnoses of severe mental illness (Giffort et al. 1995; Corrigan et al., 1999). Four people told their stories of recovery, and narrative analysis led to 39 items representing the construct of recovery. Items were reviewed by a group of 12 service users, and an original 41-item measure was developed with consideration of their feedback. Factor analysis identified a five-factor solution, and 24 items were retained (Corrigan, Salzer, Raplh, Sangster & Keck, 2004).

3.4.5 The Goal Attainment Scale (GAS)

The Goal Attainment Scale (GAS) is a measure that allows personal functional recovery to be evaluated with an objective and quantifiable method (Kiresuk & Sherman, 1968; Turner-Stokes, 2009). At baseline, up to three SMART goals are individually identified by the participant. The GAS produces standardised scores for goals. This is done using the weight assigned to the goal (participant ratings of the importance and difficulty of each goal on two scales from 0 to 3) and the numerical rating given by the participant to indicate the extent to which they achieved their goal on a scale from -2 to +2 (better than expected, fully achieved, or partially achieved), or did not (same as baseline, worse). The GAS has been used as an outcome measure in RCTs across wide range of disciplines, including mental health (Logan, Jegatheesan, Viecelli, Pascoe & Hubbard, 2022). The GAS was used as the primary outcome measure in two studies in the current review.

Service user involvement: While there is no evidence of mental health service user involvement in the development of the GAS, we considered the measure to be a patient-centred measure because there are no pre-specified items: participants choose their own outcomes. Additionally, a qualitative study with young people (aged 12–25 years) seeking support for their mental health indicated that the GAS is seen as an acceptable and useful tool for use in therapy (Cairns, Kavanagh, Dark, & McPhail, 2015).

3.4.6 The World Health Organization Quality of Life Brief Version (WHOQOL-BREF)

The WHOQOL-BREF is a measure of quality of life (The WHOQOL Group, 1998a). It is available in multiple languages and has been found to be a cross-culturally valid and reliable measure of quality of life (Skevington, Lotfy & O'Connell, 2004). The WHOQOL-BREF is a 26-item questionnaire. Items are scored on a scale from 1 to 5, with higher scores indicating a better quality of life. Two items ask about an individual's overall perception of their quality of life, and overall satisfaction with their health, and an overall quality of life score can be calculated from these two items ranging from 0 (worst possible state of health) to 100 (best possible state of health). The remaining 24 items cover quality of life across four domains: physical health, psychological (e.g. positive feelings, self-esteem), social relationships, and environment (e.g. freedom, physical safety and security). Each domain is scored separately and converted into a scale from 0 (worst possible state of health) to 100 (best possible state of health). Overall quality of life (two items) is scored separately from the four domain scores (six items each), and there is no total score. The WHOQOL-BREF was used in 11 studies in the current review and was the primary outcome measure in two of these studies.

Service user involvement: The WHOQOL-BREF is an abbreviated version of the WHOQOL-100 quality of life assessment, which was developed during a large project carried out in a range of cultural settings worldwide (The WHOQOL Group, 1994; 1998b). This project involved focus groups with people using mental health services (The WHOQoL Group, 1994; 1998b)

3.4.7 The European Health Interview Survey (EUROHIS-QOL)

Another measure of quality of life in the included studies was the 8-item The European Health Interview Survey (EUROHIS-QOL) (Schmidt, Mühlan & Power, 2006). The EUROHIS-QOL is an adaptation of the WHOQOL-100 and the WHOQOL-BREF. Factor analyses were employed to identify items that showed the best fit for a single factor, and the four domains of the WHOQOL-BREF are represented with two items each (Schmidt et al., 2006). The overall score is a sum of the eight items, and higher score indicates better quality of life. The EUROHIS-QOL was used in two studies in the current review, as a secondary outcome measure.

Service user involvement: The EUROHIS-QOL is an adaptation of the WHOQOL-BREF and was therefore developed using the same participatory research techniques.

3.4.8 The Schizophrenia Quality of Life Scale (SQLS)

The SQLS is a 30-item measure with three scales, which are scored separately (Wilkinson et al., 2000). The psychosocial scale (15 items) addresses emotional problems (e.g. feeling lonely, worries about the future, and difficult with socials situations). The other scales are the motivation and energy scale (7 items), which has some positively worded items, and the symptoms and side-effects scale (8 items), which addresses issues that can be associated with medication. Each scale score is transformed into a score from 0 to 100, with 100 indicating lower quality of life. The SQLS was used as a secondary outcome in two studies in the current review.

Service user involvement: The SQLS was developed in the UK in several stages (Wilkinson et al., 2000). Exploratory semi-structured interviews were carried with twenty service users with schizophrenia who were asked to describe areas of their life that had been influenced by their condition, and 378 candidate items were generated. Researchers independently chose items, and in a pilot study, items were revised based on feedback from twenty people with schizophrenia.

3.4.9 The Internalised Stigma of Mental Illness Scale (ISMI)

One measure of self-stigma was used in twelve studies, The Internalised Stigma of Mental Illness Scale (ISMI) (Boyd Ritsher, Otilingam & Grajales, 2003). The ISMI was developed in the USA and has been translated into multiple languages. It has been shown to be a valid and reliable measure of self-stigma in people with mental health difficulties across a range of cultures (Boyd, Adler, Otilingam & Peters, 2014). The ISMI has 29 items, on which respondents rate their level of agreement on a scale from 1 (strongly disagree) to 4 (strongly agree). Items are summed, giving a total score, with higher scores reflecting higher levels of internalised stigma. The ISMI also contains five subscales which can be scored separately: alienation, stereotype endorsement, perceived discrimination, social withdrawal, and stigma resistance (e.g. ‘I feel out of place in the world because I have a mental illness,’ ‘I can have a good, fulfilling life, despite my mental illness’). Items on the stigma resistance subscale are reverse-coded. A shorter 10-item version has also been developed, retaining the two strongest items from each subscale (Boyd, Otilingam, & DeForge, 2014). The ISMI was used in twelve studies in the current review and was the primary outcome in six of these studies.

Service user involvement: Two focus groups were held with people with mental health difficulties, who suggested topics to include (Boyd Ritsher et al., 2003). A third group of service users made editorial contributions to an initial version of the ISMI and suggested additional items to include.

3.4.10 The WHO Disability Assessment Schedule (WHODAS 2.0), Self-report

The WHO Disability Assessment Schedule (WHODAS 2.0) Self-report is a 12-item questionnaire based on the WHODAS 2.0 semi-structured interview (Üstün et al., 2010; Axelsson et al., 2017). The WHODAS 2.0 assesses disability and functioning in the previous month. Respondents rate their difficulty in relation to six tasks (understanding and communication, self-care, mobility, interpersonal relationships, work and household roles, and community and civic participation) on a scale from 1 (no difficulty) to 5 (extreme difficulty). Scores are summed, with higher scores indicating higher levels of disability. The WHODAS 2.0 Self-report was used in one study in the current review, as a secondary outcome measure.

Service user involvement: The WHODAS 2.0 was developed during a cross-cultural study spanning 19 countries. Interviews and focus groups were held, these involved people with mental health and drug and alcohol problems (Üstün et al., 2010). These explored how health status is assessed in different cultures and involved qualitative methods such as pile sorting and concept mapping.

3.4.11 The Rogers Empowerment Scale (RES)

The Rogers Empowerment Scale (RES) was developed in the USA and has been validated in several populations (Rogers, Chamberlin, Ellison & Crean, 1997; Wowra & McCarter, 1999; Rogers, Ralph & Salzer, 2010). The RES is a 28-item scale comprised of statements (e.g. 'I am often able to overcome barriers,' 'I can pretty much determine what will happen in my life') rated by the respondent on a scale from 1 ('strongly disagree') to 4 ('strongly agree'). A mean score is generated ranging from 1 to 4, with higher scores indicating higher levels of the construct of empowerment. The RES was used in one study in the current review, as a secondary outcome measure.

Service user involvement: Scale items were developed with members of the consumer-survivor movement, who were members of research advisory boards across six states, who were asked to arrive at a consensus definition of empowerment that was relevant for people with mental health difficulties (Rogers et al., 1997).

3.4.12 The Subjective Sense in Psychosis Questionnaire (SUSE)

The Subjective Sense in Psychosis Questionnaire (SUSE) was developed in Germany, and measures positive and negative meanings attributed to psychotic experiences (Klapheck, Nordmeyer, Cronjäger, Naber, & Bock, 2012). One study in the current review used the short version, which contains 28 items rated on a scale from 1 ('agree') to 4 ('disagree'). There are five subscales: biographical integration, positive and negative experiences of symptoms in the present, and positive and negative consequences of psychosis. The SUSE was used in one study in the current review, as the primary outcome measure.

Service user involvement: Items were initially generated by a research team; however, item refinement was informed by qualitative participatory research techniques: subjective meaning was explored with service users in narrative interviews, focus groups, and 'Psychosis seminars,' which refer to forums (established in German-speaking countries) that provide an opportunity for service users, relatives and clinicians to meet and share their perspectives (Bock & Priebe, 2005).

3.4.13 The Self-evaluation of Negative Symptoms (SNS)

The Self-evaluation of Negative Symptoms (SNS) is a 20-item self-report measure of negative symptoms that was developed in France (Dollfus, Mach & Morello, 2015). The SNS is available in several languages and has been found to have good psychometric properties among European samples (Dollfus et al., 2022). The respondent rates their level of agreement with twenty statements from 0 (strongly disagree) to 2 (strongly agree) based on how they have been feeling over the past week. Scores range from 0 to 40, with higher scores indicating more severe negative symptoms. Scores can also be generated for five subscales (social withdrawal, anhedonia, alogia, avolition, and reduced emotional range) which reflect the five consensus domains of negative symptoms. The SNS was used as a secondary outcome in one study in the current review.

Service user involvement: In the development of the SNS, five focus groups were conducted in France, involving 28 people with schizophrenia (Dollfus et al., 2015). A structured interview schedule was used explore the perception of negative symptoms, and verbatim reports from these focus groups were used to develop most of the items.

Table 2. Characteristics of included studies

Country (Author, date)	Study design	Intervention & control	Length	I/G*	Inpatient/ outpatient	Sample	Diagnostic criteria	Primary outcome/s	PROM/S
Cognitive behavioural interventions									
United Kingdom (Freeman, Pugh et al. 2014)	Pilot RCT	1. Brief CBTp 2. Usual care	6 sessions, 8 weeks	I	Outpatient	30 participants 15 in intervention group 15 in control group	Schizophrenia, schizoaffective disorder, delusional disorder, or psychosis NOS	Negative self-beliefs (core schemas), paranoia	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)
United Kingdom (Garety et al., 2021)	RCT	1. SlowMo, Blended Digital Therapy (CBTp) 2. Usual care	8 sessions, 12 weeks	I	Outpatient	362 participants 181 in intervention group 181 in control group	Schizophrenia, schizoaffective disorder, delusional disorder, or psychosis NOS	Paranoia	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)
United Kingdom (Freeman, Emsley et al. 2021)	RCT	1. The Feeling Safe Programme 2. Befriending programme	20 sessions, 6 months 20 sessions, 6 months	I	Outpatient	130 participants 64 in intervention group 66 in control group	Schizophrenia, schizoaffective disorder, delusional disorder, or psychosis NOS	Conviction in persecutory delusions	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) Choice of outcome in CBT for psychoses (CHOICE)
United Kingdom (Freeman, Dunn et al., 2015)	RCT	1. Worry reduction Intervention, CBT 2. Standard care	6 sessions, 8 weeks	I	Outpatient	150 participants 73 in intervention group 77 in control group	Schizophrenia, schizoaffective disorder, delusional disorder, or psychosis NOS	Level of worry, conviction in persecutory delusions	Wellbeing: The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) Choice of outcome in CBT for psychoses (CHOICE)

United Kingdom (Freeman, Waite et al., 2015)	Pilot RCT	1. CBT for sleep improvement 2. Standard care	8 sessions, 12 weeks	I	Outpatient	50 participants 24 in intervention group 26 in control group	Schizophrenia, schizoaffective disorder, delusional disorder, or psychosis NOS	Insomnia, delusions and hallucinations	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) Choice of outcome in CBT for psychoses (CHOICE)
United Kingdom (Sheaves et al., 2019)	Pilot RCT	1. CBT for nightmares 2. Treatment as usual (waitlist control)	4 sessions, 4 weeks	I	Outpatient	24 participants 12 in intervention group 12 in control group	Schizophrenia, schizoaffective disorder, delusional disorder, or psychosis NOS	Feasibility & acceptability outcomes, nightmare severity	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)
United Kingdom (Hayward et al., 2021)	Feasibility RCT	1. The GiVE intervention for voices 2. Supportive counselling 3. Treatment as usual	8 sessions, 16 weeks 8 sessions, 16 weeks	I	Outpatient	79 participants 26 in intervention group 26 in active control group 27 in control group	Schizophrenia spectrum or other psychotic disorders	Feasibility outcomes, voice related distress and impact	Choice of outcome in CBT for psychoses (CHOICE), Short form
The Netherlands (Wiersma et al., 2004)	RCT	1. Hallucination focused integrative treatment 2. Routine care	9 months	I & G	Outpatient	76 participants 37 in intervention group 39 in control group	Paranoid schizophrenia, schizoaffective disorder, or psychosis NOS	Not specified	World Health Organisation Quality of Life (WHOQOL-BREF)
Switzerland & Germany (Westermann et al, 2020)	RCT	1. Internet-based CBT for psychosis (iCBTp) 2. Waitlist control	11 modules, 8 weeks	I	Inpatient & outpatient	101 participants 50 in intervention group 51 in control group	Schizophrenia spectrum disorder	Positive symptoms	World Health Organisation Quality of Life (WHOQOL-BREF) Internalized Stigma of Mental Illness (ISMI)

Canada (Konsztowicz et al., 2021)	Pilot pseudo RCT	1. Self-concept and Engagement in LiFe (SELF) 2. Waitlist control	4 sessions, 4 weeks	I	Inpatient & outpatient	40 participants 20 in intervention group 20 in control group	Schizophrenia spectrum or related psychotic disorder	Illness engulfment	The Internalised Stigma of Mental Illness Scale (ISMI)
The Netherlands (Pot-Kolder et al., 2018)	RCT	1. VR CBT for paranoid ideation and social avoidance 2. Treatment as Usual	16 sessions, 12 weeks	I	Outpatient	116 participants 58 in intervention group 58 in control group	Psychotic disorder	Social participation	The Internalised Stigma of Mental Illness Scale (ISMI)
The Netherlands (Pos et al., 2019)	RCT	1. CBT for Social Activation 2. Treatment as Usual	14 sessions, 3 months	I & G	Inpatient & outpatient	99 participants 49 in intervention group 50 in control group	Schizophrenia or related disorder with onset of first episode <4y	Negative symptoms	The Internalised Stigma of Mental Illness Scale (ISMI)
United Kingdom (Cella et al., 2022)	Pilot feasibility RCT	1. VR Supported Therapy for Negative Symptoms (V-NeST) 2. Treatment as Usual	12 sessions, 12 weeks	I	Outpatient	30 patients 15 in intervention group 15 in control group	Documented episode of psychosis and/or a diagnosis of schizophrenia	The Goal Attainment Scale (GAS)	The Goal Attainment Scale (GAS) The Self-Evaluation of Negative Symptoms (SNS)
Canada (Naeem et al, 2016)	Pilot RCT	1. CBTp based Guided Self-help (CBTp-GSH) 2. Treatment as Usual	16 sessions, 16 weeks	I	Outpatient	33 participants 18 in intervention group 15 in control group	Schizophrenia or related disorders	Feasibility & acceptability outcomes	WHO Disability Assessment Schedule 2.0 Self-report (WHODAS 2.0)
Integrated Psychological Therapy									

Brazil (Zimmer et al., 2007)	RCT	1. Integrated Psychological Therapy 2. Treatment as Usual	12 sessions, 3 months	G	Outpatient	66 participants 23 in intervention group 43 in control group	Schizophrenia or schizoaffective disorder	Not specified	World Health Organisation Quality of Life (WHOQOL-BREF)
Greece (Rakitzi et al., 2016)	Feasibility & efficacy RCT	1. Integrated Psychological Therapy 2. Treatment as Usual	20 sessions, 10 weeks	G	Outpatient	48 participants 24 in intervention group 24 in control group	Schizophrenia	Cognitive outcomes	World Health Organisation Quality of Life (WHOQOL-BREF)
Mindfulness									
United Kingdom (Chadwick et al., 2016)	RCT	1. Person-Based Cognitive Therapy 2. Treatment as Usual	12 sessions, 12 weeks	G	Outpatient	108 participants 54 in intervention group 54 in control group	Schizophrenia or schizoaffective disorder	General psychological distress	Choice of outcome in CBT for psychoses (CHOICE)
Germany (Böge et al., 2021)	Feasibility RCT	1. Mindfulness-based group therapy 2. Treatment as Usual	8 sessions, 4 weeks	G	Inpatient	40 participants 21 in intervention group 19 in control group	Schizophrenia spectrum disorder	Feasibility and acceptability outcomes	World Health Organisation Quality of Life (WHOQOL-BREF)
Positive psychotherapy (PPT)									
United Kingdom (Schrank et al., 2016)	Pilot RCT	1. WELLFOCUS, PPT 2. Treatment as Usual	11 sessions, 11 weeks	G	Outpatient	94 participants 47 in intervention group 47 in control group	Schizophrenia and other psychoses, including schizoaffective disorder and	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) The Rogers Empowerment Scale (RES)

							delusional disorder		
China (Chu et al., 2022)	RCT	1. PPT for psychosis 2. Treatment as Usual	13 sessions, 7 weeks	G	Outpatient	154 participants 78 in intervention group 76 in control group	Psychosis	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)
Self-stigma reduction									
China (Fung et al., 2011)	RCT	1. Self-stigma reduction program 2. Newspaper reading group	12 group sessions, 6 weeks (+ 4 individual) 16 sessions	I & G	Outpatient	66 participants 34 in intervention group 32 in control group	Schizophrenia	Internalized Stigma of Mental Illness (ISMI) – Short version	Internalized Stigma of Mental Illness (ISMI) – Short version
Taiwan (Shih et al., 2022)	Quasi-experiment	1. Against Stigma Program 2. Treatment as Usual	6 sessions, 6 weeks	G	Inpatient	70 participants 35 in intervention group 35 in control group	Schizophrenia	Not specified	The Internalised Stigma of Mental Illness Scale (ISMI)
Saudi Arabia (Hasan & Alasmee, 2022)	RCT	1. Self-stigma reduction programme 2. Standard care	13 sessions, 26 weeks	I	Outpatient	278 participants 140 in intervention group 138 in control group	Schizophrenia spectrum disorder	The Internalised Stigma of Mental Illness Scale (ISMI)	The Internalised Stigma of Mental Illness Scale (ISMI)
United States of America (Yanos et al, 2019)	RCT	1. Narrative Enhancement and Cognitive Therapy (NECT)	20 sessions, 5 months	G	Inpatient & outpatient	170 participants 85 in the intervention group	Schizophrenia or schizoaffective disorder	The Internalised Stigma of Mental Illness Scale (ISMI)	The Internalised Stigma of Mental Illness Scale (ISMI)

		2. Supportive Group Therapy	20 sessions, 5 months			85 in control group			
Metacognitive training (MCT)									
China (Chen et al., 2021)	RCT	1. MCT 2. Usual care	8 sessions, 8 weeks	G	Outpatient	124 participants 62 in intervention group 62 in control group	Schizophrenia	Symptom severity of delusion	The Schizophrenia Quality of Life Scale (SQLS)
Germany (Moritz et al., 2014)	RCT	1. MCT 2. Neuropsychological training program	16 sessions, 8 weeks 16 sessions, 8 weeks	G	Outpatient	150 participants 76 in intervention group 74 in control group	Schizophrenia spectrum disorder	Positive symptoms	World Health Organisation Quality of Life (WHOQOL-BREF)
Germany (Moritz et al., 2018)	RCT	1. MCT+, 2. Neuropsychological training program	12 sessions, 6 weeks 12 sessions, 6 weeks	G	Outpatient	92 participants 46 in intervention group 46 in control group	Schizophrenia spectrum disorder	Positive symptoms	World Health Organisation Quality of Life (WHOQOL-BREF) Subjective Sense in Psychosis Questionnaire (SUSE)
Cognitive remediation (CR)									
United Kingdom (Wykes et al., 2023)	Adaptive RCT	1. CR (Independent) 2. CR (Group) 3. CR (One-to-One) 4. Treatment as usual	21 sessions, 10.5 weeks 42 sessions, 14 weeks 42 sessions, 12 weeks	I & G	Outpatient	377 participants 65 Independent 134 Group 112 One-to-One 66 TAU	Non-affective psychosis	The Goal Attainment Scale (GAS)	The Goal Attainment Scale (GAS)

France (d'Amato et al. 2011)	RCT	1. CR 2. Standard treatment (waiting list)	14 sessions, 7 weeks	I	Not reported	77 participants 39 in intervention group 38 in control group	Schizophrenia	Cognitive outcomes	The Schizophrenia Quality of Life Scale (SQLS)
Singapore (Tan & King, 2013)	RCT	1. CR + cognitive based counselling 2. Physical exercise + physical based counselling	36 sessions, 12 weeks 36 sessions, 12 weeks	G	Outpatient	70 participants 36 in intervention group 34 in control group	Schizophrenia or schizoaffective disorder	Cognitive outcomes	World Health Organisation Quality of Life (WHOQOL-BREF)
Australia (Bryce et al., 2018)	RCT	1. CR 2. Computer games	20 sessions, 10 weeks 20 sessions, 10 weeks	G	Outpatient	56 patients 29 in intervention group 27 in control group	Schizophrenia or schizoaffective disorder	Global cognition	World Health Organisation Quality of Life (EUROHIS-QOL)
Australia (Contreras et al. 2018)	Pilot RCT	1. CR + Visual Processing Training 2. Cognitive remediation	20 sessions, 10 weeks 20 sessions, 10 weeks	G	Not reported	25 participants 13 in intervention group 12 in control group	Schizophrenia	Global Cognition	World Health Organisation Quality of Life (EUROHIS-QOL)
Australia (Hodge et al. 2010)	Crossover RCT	1. CR, Neuro-psychological Educational Approach to Remediation (NEAR) 2. Wait list control	30 sessions, 15 weeks	G	Inpatient & outpatient	69 participants 36 in intervention group 33 in control group	Schizophrenia, schizophreniform disorder, or schizoaffective disorder	Cognitive outcomes	World Health Organisation Quality of Life (WHOQOL-BREF)
Peer support									

The Netherlands (Castelein et al., 2008)	RCT	1. Guided peer support group 2. Usual care (waiting list)	16 sessions, 8 months	G	Outpatient	106 patients 56 in intervention group 50 in control group	Schizophrenia, or related psychotic disorder	Not specified	World Health Organisation Quality of Life (WHOQOL-BREF)
Brazil (Orsi et al., 2021)	Prospective study	1. Mutual support group 2. Treatment as Usual	Weekly, 6 months	G	Outpatient	31 participants 16 in intervention group 15 in control group	Schizophrenia, schizotypal disorder and delusional disorder	Not specified	The Recovery Assessment Scale (RAS)
									The Internalised Stigma of Mental Illness Scale (ISMI)
The Netherlands (Vogel et al., 2023)	RCT	1. The Hospitality-intervention (HY) 2. Waitlist control	15 sessions, 8 months	I	Outpatient	43 participants 20 in intervention group 23 in control group	Schizophrenia spectrum disorder	The Recovery Assessment Scale (RAS)	The Recovery Assessment Scale (RAS)
									The Internalised Stigma of Mental Illness Scale (ISMI)
Other psychosocial interventions									
Austria, (Sachs et al., 2012)	RCT	1. Training of Affect Recognition (TAR) 2. Treatment as usual	12 sessions, 6 weeks	I	Inpatient & outpatient	40 participants 20 in intervention group 20 in control group	Schizophrenia	Not specified	World Health Organisation Quality of Life (WHOQOL-BREF)
United Kingdom (Longden et al., 2022)	Feasibility RCT	1. Talking with Voices Therapy 2. Treatment as Usual	26 sessions, 6 months	I	Outpatient	50 participants 24 in intervention group 26 in control group	Schizophrenia spectrum disorder	Feasibility and acceptability outcomes	The Questionnaire about the Process of Recovery (QPR)

United Kingdom (Gumley et al., 2017)	Pilot RCT	1. Acceptance & Commitment Therapy for depression after psychosis (ACTdp) 2. Standard Care	5 months	I	Outpatient	29 participants 15 in intervention group 14 in control group	Schizophrenia	Severity of depression	The Questionnaire about the Process of Recovery (QPR)
United Kingdom (Steel et al, 2020)	RCT	1. Positive Memory Training (POMET) 2. Treatment as Usual	12 sessions, 3 months	I	Outpatient	100 participants 49 in intervention group 51 in control group	Schizophrenia or schizoaffective disorder	Level of depressed mood	The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)
The Netherlands (de Jong et al., 2019)	RCT	1. Metacognitive Reflection and Insight Therapy (MERIT) 2. Treatment as Usual	40 sessions, 40 weeks	I	Outpatient	70 participants 35 in intervention group 35 in control group	Schizophrenia or schizoaffective disorder	Metacognitive functioning	The Internalised Stigma of Mental Illness Scale (ISMI)
The Netherlands (Pijnenborg et al, 2019)	RCT	1. REFLEX, Intervention for insight 2. Group-wise simplified CR training	12 sessions, 6 weeks 12 sessions, 6 weeks	G	Inpatient & outpatient	121 participants 59 in intervention group 62 in control group	Schizophrenia	Multiple outcomes	The Internalised Stigma of Mental Illness Scale (ISMI)

*I/G: Individual/Group
Other abbreviations: RCT, Randomised Controlled Trial. CBT, Cognitive Behavioural Therapy. Psychosis NOS, Psychosis Not Otherwise Specified.

3.5 Summary of included studies

Studies looked at the feasibility, acceptability, and effectiveness of a range of psychosocial interventions for people with schizophrenia.

3.5.1 Cognitive Behavioural interventions

Fourteen studies considered CBT-informed interventions, with the majority conducted in the UK (57%) and The Netherlands (21%). Most interventions (57%) targeted voices or delusions (or processes contributing to delusions such as paranoia and worry), two interventions targeted sleep, three interventions focused on social activation or negative symptoms, and one intervention focused on illness engulfment. Outcomes used were the WEMWBS (43%), the CHOICE (29%), the ISMI (29%), and the WHOQOL-BREF (14%), and the WHODAS 2.0 Self-report was used in one study.

In a small pilot RCT conducted in the UK, the WEMWBS was a secondary outcome measure (Freeman, Pugh et al. 2014). In this study, 30 participants were randomised to either a brief six-session CBTp intervention or treatment as usual (TAU). There was an effect on mental wellbeing at eight weeks (post-therapy) favouring the intervention (Cohen's d: 1.16; 95% CI: 2.2 to 12.6, p=0.007), although this was not maintained at follow-up (Cohen's d not reported, 95% CI: −1.0 to 13.0, p=0.089). A large UK RCT of 362 participants compared SlowMo, a CBTp intervention for paranoia that blends 8 face-to-face sessions with a mobile app, with usual care (Garety et al., 2021). On the WEMWBS, which was a secondary outcome, there was a non-significant effect favouring SlowMo post-treatment (Cohen's d: 0.18, 95% CI: –0.02 to 0.37, p-value not reported), and a significant effect favouring SlowMo at 24-week follow-up (Cohen's d: 0.32 95% CI: 0.12 to 0.51, p=0.001).

Another large RCT of 130 participants looked at The Feeling Safe Programme, a twenty-session CBTp intervention delivered over six months targeting persecutory delusions, in which participants choose from modules aimed at improving problems in several areas including sleep, worry, self-confidence, and reasoning processes (Freeman, Emsley et al. 2021). This study included a befriending intervention as an active control, and the WEMWBS and the CHOICE Satisfaction scale were secondary outcomes. There were significant improvements in mental wellbeing post-treatment, with a moderate effect size favouring The Feeling Safe

Programme (Cohen’s d: 0.60, 95% CI: 0.27 to 0.93, p<0.0001), although this was not maintained at follow-up (Cohen’s d: 0.27, 95% CI: –0.07 to 0.6, p=0.121). For CHOICE Satisfaction, there was a moderate effect favouring The Feeling Safe Programme post-treatment (Cohen’s d: 0.47, 95% CI: 0.11 to 0.82, p=0.010), which was maintained at follow-up (Cohen’s d: 0.45, 95% CI: 0.09 to 0.81, p=0.015). No results were reported for the CHOICE Severity scale. In another UK RCT, The Worry Intervention Trial, participants with persecutory delusions were randomly allocated either to a brief six-session intervention targeting worry, or standard care (Freeman, Dunn et al., 2015). The WEMWBS and the CHOICE were secondary outcomes, and treatment effect estimates common to both follow-up timepoints were made due to there being no differences between them. There was an effect favouring the intervention for both mental wellbeing (Cohen’s d=0.23, p=0.03) and CHOICE patient-chosen outcomes (Cohen’s d: 0.52, p<0.001).

Two RCTs, conducted in the UK, looked at CBT interventions for sleep. Tests of intervention efficacy were not reported in either of these studies as they were Pilot RCTs. A study of 50 participants compared CBT for sleep improvement with standard care (Freeman, Waite et al., 2015). The WEMWBS and the original version of the CHOICE were secondary outcomes. Intention-to-treat (ITT) analyses found a small effect of the intervention on wellbeing at 12 weeks (post-treatment) (Cohen’s d: 0.3) and a medium effect at 24-week follow-up (Cohen’s d: 0.6). For the CHOICE, there was a medium effect favouring the intervention on patient-chosen outcomes post-treatment (Cohen’s d: 0.5) although this was reduced at follow-up (Cohen’s d: 0.2). In the other study, 24 participants were allocated to either four sessions of CBT for Nightmares for patients with persecutory delusions (Nites) or TAU (Sheaves et al., 2019). The WEMWBS was a secondary outcome, and they found a moderate effect on mental wellbeing favouring Nites post-treatment (Cohen’s d: 0.43), and a moderate effect favouring TAU at 8-week follow-up (Cohen’s d: -0.47). No conclusions were drawn by the authors due to the confidence intervals overlapping zero.

Another study used the CHOICE Short-Form (SF) as a secondary outcome measure. This was a feasibility RCT of a brief CBT intervention for distressing voices: The GiVE intervention + self-help workbook (Hayward et al., 2021). Participants were randomly allocated to eight sessions of GiVE, eight sessions of supportive counselling, or TAU. For the CHOICE-SF (which covers the severity domain of the CHOICE), there was a large effect size favouring GiVE over TAU at post-treatment (Cohen's d: 1.03) and a medium effect size favouring GiVE over TAU at 24-week follow-up (Cohen's d: 0.62). For the CHOICE-SF personal goal rating, effect sizes were large at both follow up timepoints, favouring GiVE over TAU at post-treatment (Cohen's d: 1.10) and at 24-week follow-up (Cohen's d: 0.92). Other pairwise comparisons can be found in Table 3.

One study used the WHODAS 2.0 Self-report as a secondary outcome. This was a Pilot RCT comparing a 12 to 16 session CBTp-based Guided Self-help intervention with TAU (Naeem et al., 2016). An ITT analysis found significant effect of the intervention on disability post-treatment favouring the intervention group (Cohen's d: 1.99, p<0.0001).

The WHOQOL-BREF was the primary outcome in a study from The Netherlands that considered Hallucination-focused integrative treatment, a 9-month intervention which incorporates CBT and coping training (Wiersma, Jenner, Nienhuis & van, De Willige, 2004). They reported separately on the total score (all items), the overall quality of life score (Q1) and the satisfaction with health score (Q2). A series of independent T-Tests found no significant difference in WHOQOL-BREF total score or (Q2) Satisfaction with health between groups post-treatment (p-values not reported), although at 18-month follow-up both scores were found to be significantly different, favouring the intervention group (both p<0.05). For Overall quality of life (Q1), scores were significantly higher in the intervention group post-treatment (p<0.05), however this effect was not maintained at 18-month follow-up (p-value not reported). One CBTp study conducted in Switzerland and Germany included quality of life as a secondary outcome, also measured with the WHOQOL-BREF (Westermann, Rüegg, Lüdtke, Moritz & Berger, 2020). In this RCT, participants were allocated to either an internet based CBTp intervention (eleven modules over eight weeks) or a waitlist control. The authors reported only on the psychological quality of life domain of the WHOQOL-BREF (in addition to the ISMI Short version) and found no effect.

A small Pilot study from Canada used a brief four session intervention called Self-concept and Engagement in LiFe (SELF), an intervention grounded in a CBT approach, drawing also on narrative therapy and positive psychology (Konsztowicz, Gelencser, Otis, Schmitz & Lepage, 2021). The aim of SELF is to reduce illness engulfment, supporting participants to develop a healthier self-concept recognise their identity beyond their mental health difficulties. The ISMI was an outcome measure, and the analyses found no effect of SELF on internalised stigma (η2 partial: 0.04, p=0.28). Another study in the Netherlands used the ISMI as a secondary outcome (Pos et al. 2019). This was an RCT comparing CBT for social activation targeting negative symptoms (eight group and six individual sessions) with TAU. There was no effect of the intervention on internalised stigma post-treatment (p=0.384) and 6-month follow up (p=0.449). Another RCT of 116 participants in the Netherlands compared sixteen sessions of VR CBT for paranoid ideation and social avoidance and used the ISMI as a secondary outcome measure (Pot-Kolder et al., 2018). There was no effect on self-stigma post-treatment (Cohen's d: -0.11, p=0.540), although there was an effect favouring the intervention at 6-month follow up (Cohen's d: -0.44, p = 0.020).

Another Pilot RCT looked at the feasibility and acceptability of Virtual reality-NEgative Symptom Therapy (V-NeST), a newly developed VR-assisted therapy that uses CBT principles to reduce the impact of negative symptoms (Cella et al., 2020). This was a pilot study, and the primary outcome was the GAS. A large treatment effect was observed on the GAS at follow-up (Cohen's d: 1.48, 95% CI: 0.61 to 2.35, p=0.001). This study also used the SNS as a self-report measure of negative symptom severity. The effect on negative symptoms favoured V-NeST, however it was not statistically significant (Cohen's d: −0.34, 95% CI: -1.11. to 0.43, p=0.196).

3.5.2 Integrated Psychological Therapy (IPT)

Two studies of Integrated Psychological Therapy (IPT) were included, both of which used the WHOQOL-BREF as a secondary outcome. IPT is a manualised, group-based CBT program combining neurocognitive and social cognitive remediation with psychosocial rehabilitation (Roder, Mueller, & Schmidt, 2011). One IPT study was conducted in Brazil, participants were recruited and randomised in two waves to either a twelve session IPT group intervention or treatment as usual, on a 2:1 ratio (Zimmer, Duncan, Laitano, Ferreira & Belmonte-de-Abreu, 2007). A completers analysis found an effect of the IPT intervention on the psychological domain (p=0.021) of the WHOQOL-BREF, but not on the other domains. However, overall quality of life decreased significantly in both groups, more so in the intervention group (p=0.000). The other IPT study, conducted in Greece (Rakitzi, Georgila, Efthimiou & Mueller, 2016), found no effect of the IPT intervention on WHOQOL-BREF ‘overall’ score post-treatment (Cohen’s d: 0.17, p=0.60), and an effect favouring the TAU group at 3-month follow-up (Cohen’s d: -0.69, p=0.03).

3.5.3 Mindfulness interventions

Two studies evaluated mindfulness interventions in group format. One study considered Person-based Cognitive Therapy (PBCT), which was developed for people with psychosis, and integrates CBTp and mindfulness (Chadwick, 2006). In this study, Chadwick and colleagues (2016) included the CHOICE as a secondary outcome measure. Inpatient participants were randomly assigned to either twelve sessions of group PBCT or TAU. For the CHOICE Severity domain, there was no effect of the intervention at post-treatment (Cohen’s d: 0.327, p=0.056) and a significant effect favouring PBCT at 10-month follow-up (Cohen’s d: 0.421, p=0.020). For the Satisfaction domain, the effect sizes were small and not statistically significant. A smaller, Pilot RCT conducted in Germany compared Mindfulness-based group therapy (MBGT) to TAU and incorporated the WHOQOL-BREF as a secondary outcome (Böge et al., 2021). They found significant improvements in quality of life in the MBGT group in the physical health (Cohen’s d: 0.51, p=0.03), environment (Cohen’s d: 0.53, p=0.01) and psychological (Cohen’s d: 0.29, p=0.01) domains, but not the social relationships domain (Cohen’s d: 0.27, p=0.17).

3.5.4 Positive Psychotherapy (PPT)

Two studies evaluating Positive Psychotherapy (PPT) used the WEMWBS as a primary outcome. PPT is an intervention that supports service users to identify and develop their personal strengths and notice and remember positive experiences. Schrank and colleagues (2014) adapted PPT into a group intervention for people with psychosis (WELLFOCUS PPT). They found no effect of the intervention on wellbeing (Cohen’s d: 0.15, p=0.37) and on the Rogers Empowerment Scale, a secondary outcome (Cohen’s d: 0.22, p=0.16). A second RCT was conducted with 154 participants in Hong Kong, in which participants received either thirteen group sessions of PPT, or standard care (Chu et al., 2022). A significant group-by-time interaction indicated improved levels of mental wellbeing in the intervention group post-treatment (p=0.001). A standardised effect size was not reported.

3.5.5 Self-stigma reduction interventions

Studies from four different countries explored the efficacy of self-stigma reduction interventions, with the ISMI as the primary outcome. Self-stigma reduction programmes are integrative approaches incorporating psychoeducation, social skills training, and cognitive restructuring. One RCT was conducted in Hong Kong (Fung, Tsang, & Cheung, 2011). This study recruited 66 participants and randomly allocated them to a newspaper reading group or a sixteen-session self-stigma reduction program, which combined group and individual sessions. They found an effect of the intervention on the self-esteem decrement subscale on the Chinese version of the ISMI (p=0.011), this effect was not maintained at follow-up. Another study of a self-stigma reduction intervention took place in Northern Taiwan, in with a shorter, six-session inpatient group program which was compared to TAU (Shih, Huang, & Yang, 2022). They found that scores on the ISMI were significantly lower in the intervention group at post-treatment (p=0.012), but not at 1-month follow-up (p=0.876).

Another, larger RCT of 278 participants was conducted in Saudi Arabia (Hasan & Alasmee, 2022). Participants received either standard care or a self-stigma reduction programme which adopted similar framework to the previous study (Fung et al., 2011). An ITT analysis found a large group-by-time effect favouring the intervention, with a large effect size (effect size: 0.59, p<0.001). Post-hoc comparisons indicated that stigma was significantly improved in the intervention group post-treatment (p=0.02) and this effect was maintained at 6-month follow-up (p=0.025). Another study was a large RCT conducted in the USA, in which 170 participants were randomly allocated to either twenty sessions of supportive group therapy (active control) or twenty group sessions of Narrative Enhancement and Cognitive Therapy (NECT), a self-stigma reduction intervention (Yanos et al., 2019). For all three follow-up timepoints (post-treatment, 3 months and 6 months), there was a small non-significant effect favouring NECT for ISMI total score (effect size: 0.25, p=0.09) and a significant effect for the ISMI social withdrawal scale (effect size: 0.34, p=0.03), but not for the other three subscales (alienation, discrimination experiences, and stereotype endorsement). Post-treatment, a significant effect favouring NECT was found for the social withdrawal subscale (p<0.05) but not for the other subscales or for total ISMI score. For data collected three months after the end of treatment, there were significant effects for ISMI total score, social withdrawal, and stereotype endorsement (all p<0.05), but not for the other subscale. No significant effects were found at 6-month follow-up.

3.5.6 Metacognitive training (MCT)

Metacognitive training aims to support people with psychosis to understand the role of cognitive biases (e.g. Jumping to conclusions) in the formation and maintenance of psychotic symptoms. Three studies evaluated Metacognitive interventions and used a quality-of-life measure as a secondary outcome. A study conducted in Ningbo, China, used the SQLS as a secondary outcome (Chen et al. 2021), and randomised 124 participants to either eight sessions of group MCT with community-based rehabilitation (CBR), or CBR alone. They found a significant effect of MCT on the psychosocial scale of the SQLS (η2 partial: 0.103, p=0.013), but not the motivation and energy or the symptoms and side effects scales (results reported in Table 3). Moritz and colleagues carried out two RCTs of MCT in, Germany, both of which used the WHOQOL-BREF as a secondary outcome. One study (Moritz et al., 2014) examines 3-year follow-up data from an earlier RCT in which participants were allocated to an MCT group or a Neuropsychological training program, the original study was not included in the current review because the authors did not report on quality of life as an outcome (Moritz et al., 2013). In the study included in the current review (Moritz et al., 2014), they found no difference in scores for the four domain scores on the WHOQOL-BREF (psychological, physical, social, environmental). They did find an effect on ‘Global’ score favouring the MCT group (η2 partial: 0.037, p=0.05), with ‘Global’ assumed to refer to overall quality of life. In the second RCT, Moritz and colleagues (2018) investigated MCT+, an intervention which builds on MCT. They reported only on a ‘total score’ for the WHOQOL-BREF and found no effect of MCT+ on WHOQOL-BREF ‘total score.’ This was the only study that used the SUSE. The main effect of SUSE subscales was significant post-treatment (Partial η2: 0.378, p<0.001) and at 6-month follow-up (Partial η2: 0.403, p<0.001), with the negative consequences subscale endorsed less frequently in the MCT+ group (compared to the other subscales) post-treatment (p<0.001) and at 6-month follow-up (p=0.038).

3.5.7 Cognitive Remediation (CR)

Six cognitive remediation (CR) studies were included in the current review. CR interventions aim to improve cognitive process such as memory, attention, and executive functioning with the aim of promoting improved functioning (Wykes, Huddy, Cellard, McGurk & Czobor, 2011). One CR study, a large multi-centre RCT of different CR delivery methods conducted in the UK, used the GAS as the primary outcome measure (Wykes et al., 2023). There was a moderate effect on the GAS favouring the group and individual CR at post-therapy (Cohen's d: 0.57, 95% CI: 0.19 to 0.96, p=0.003) compared to independent CR and TAU, and at 6-month follow-up, this effect was no longer significant (Cohen's d: 0.27, 95% CI: -0.20 to 0.73, p=0.262). One RCT in South-East France compared fourteen individual sessions of computer-assisted CR with standard care, with the SQLS used as a secondary outcome (d'Amato et al., 2011). Results showed improvement in quality of life for both groups, although these were not statistically significant. Another RCT in Singapore considered CR interventions and included quality of life as a secondary outcome. Tan and King (2013) carried out an RCT of 70 participants, comparing Computerised CR and Cognitive based counselling to an active control (exercise programme and physical based counselling). The analysis found no differences in quality of life (measured using the WHOQOL-BREF) between groups at follow-up.

Three other CR studies were conducted in Australia and assessed quality of life as a secondary outcome. Two of these studies used the EUROHIS-QOL. Bryce and colleagues (2018) compared twenty group sessions of CR to an active control (computer games). They found no effect of the intervention on quality of life (p=0.75). A small Pilot RCT examined the possible benefits of adding Visual Processing Training to CR (Contreras, Tan, Lee, Castle & Rossell, 2018). In a completers analysis, they found no effect of the intervention on quality of life (p=0.61), although quality of life improved among both groups over time (p=0.01). Hodge and colleagues (2010) conducted a crossover RCT with a waitlist control using Neuropsychological Educational Approach to Remediation (NEAR). The WHOQOL-BREF was a secondary outcome. Pre-post analyses of 40 participants (treatment completers) found no significant improvements in any of the four WHOQOL-BREF domain scores within groups from baseline to post-treatment, or from post-treatment to 4-month follow-up.

3.5.8 Peer Support

Three studies of peer support interventions were included. One study was conducted in The Netherlands and used the WHOQOL-BREF as an outcome, with no primary outcome specified (Castelein et al., 2008). The intervention was a peer support group in which participants discussed daily life experiences with the goal of providing peer-to-peer interaction. In the main ITT analysis, the authors reported on a WHOQOL 'total score' and found no differences in quality of life between the peer support group and usual care group (p=0.87), although participants in both conditions improved. Another study in Brazil compared a 6-month mutual support group intervention with a control group of people being treated in an outpatient psychiatric service (Orsi et al., 2021). This was a small prospective study with no random allocation. Outcomes included internalised stigma and recovery, measuring using the ISMI and the RAS. Post-intervention, there was no significant difference between the groups in RAS scores, but there were higher scores on the ISMI in the control group, indicating higher internalized stigma. The third peer support study was an RCT conducted in The Netherlands, comparing The Hospitality-intervention (HY) to a waitlist control (Vogel et al., 2023). HY was an eating club that involved individual home-based skill training and guided peer support sessions, that ran for eight months. This study also used the RAS (as the primary outcome) and the ISMI (as a secondary outcome). There was no significant difference between groups on the RAS at post-intervention (p=0.481), and an effect favouring the control group at 12-month follow-up (p=0.011). There were no significant differences between groups on the ISMI post-intervention (p=0.160) or at 12-month follow-up (p=0.481).

3.5.9 Other psychosocial interventions

A Feasibility RCT considered Talking with Voices (TwV) (Longden et al., 2022). TwV is a survivor-informed intervention in which the therapist supports a service user to relate their voices to social and emotional conflicts and subsequently engage in a dialogue with them (Longden et al., 2021). Standardised effect sizes or tests of statistical significance were not reported, although the adjusted mean difference between groups for the QPR was −6.94, with higher scores in the TwV group post-treatment (Longden et al., 2022). The QPR was also used in another pilot study of Acceptance and Commitment Therapy for depression after psychosis (ACTdp), which aims to increase psychological flexibility through mindfulness, reducing experiential avoidance and fusion with experiences, and support service users to engage in activities that are consistent with their values (Gumley et al., 2017). They reported no effect of the intervention on the QPR, effect sizes were not reported.

Two studies from the Netherlands used the ISMI as a secondary outcome. The first was an RCT of Metacognitive Reflection and Insight Therapy (MERIT) (de Jong et al., 2019). MERIT aims to develop aspects of metacognition: self-reflectivity, understanding of other people's minds, decentration, and mastery (Lysaker & Dimaggio, 2014). Participants were allocated to MERIT (forty individual sessions) or TAU. They reported no effect on internalised stigma but results for secondary outcomes were not reported. Another, larger RCT looked at REFLEX, an intervention for impaired insight in psychosis which focuses on coping with stigma and increasing self-reflection (Pijnenborg et al., 2018). Participants were allocated to either twelve group sessions of REFLEX, or an active control group who received twelve group sessions of simplified CR training. At post-treatment, there was no significant difference in ISMI scores between groups, and at 6-month follow-up, the effect favoured the control group: self-stigma returned to baseline in the intervention group and decreased significantly further in control group ($p<0.05$). Standardised effect sizes and p-values were not reported.

Another UK study explored at Positive Memory Training for treatment of depression in schizophrenia (PoMeT) and used the WEMWBS as a secondary outcome (Steel et al, 2020). PoMeT was adapted from Competitive Memory Training (CoMeT), a treatment for depression and self-esteem in which patients are trained to activate positive self-representations (Korrelboom, IJdema, Karreman, & van der Gaag, 2022). There was no effect of PoMeT on wellbeing following the 3-month treatment period (Cohen's d: -0.13; $p=0.34$) or at 9-month follow-up (Cohen's d: 0.06, $p=0.68$). Sachs and colleagues (2012) recruited 38 participants and explored quality of life as an outcome of an intervention called Training of Affect Recognition (TAR), which aims to improve facial affect recognition. A repeated measures ANOVA found no significant effects of group and time for the psychological ($p=0.490$), physical ($p=0.162$), or environmental ($p=0.904$) domains on the WHOQOL-BREF, although there was some evidence for an effect of TAR in the social domain ($p=0.052$).

Table 3. Results of included studies: analyses, follow-up timepoints and effects on PROMs of interest

	Analysis		Effect type	Timepoint	PROM	Primary outcome	Scale	Effect size	P-value
United Kingdom (Freeman, Pugh et al. 2014)	ANCOVA	ITT analysis	Cohen's d	8 weeks (post-treatment)	WEMWBS	N	Total score	1.16	**0.007***
				12 weeks				.	0.089
United Kingdom (Garety et al., 2021)	Linear mixed model	ITT analysis	Cohen's d	12 weeks (post-treatment)	WEMWBS	N	Total score	0.18	.
				24 weeks				0.32	**0.001***
United Kingdom (Freeman, Emsley et al. 2021)	Linear mixed-effect model	ITT analysis	Cohen's d	6 months (post-treatment)	WEMWBS	N	Total score	0.060	**<0.0001***
				12 months				0.27	**0.121**
				6 months (post-treatment)	CHOICE	N	Satisfaction	0.47	**0.010***
				12 months				0.45	**0.015***
United Kingdom (Freeman, Dunn et al., 2015)	Mixed effect model	ITT analysis	Cohen's d	8 weeks (post-treatment) & 24 weeks	WEMWBS	N	Total score	0.23	**0.03***
				8 weeks (post-treatment) & 24 weeks	CHOICE	N	Patient chosen outcomes	0.52	**<0.001***
United Kingdom (Freeman, Waite et al., 2015)	ANCOVA	ITT analysis	Cohen's d	12 weeks (post-treatment)	WEMWBS	N	Total score	0.3	.
				24 weeks				0.6	.
				12 weeks (post-treatment)	CHOICE	N	Patient chosen outcomes	0.5	.
				24 weeks				0.2	.
United Kingdom (Sheaves et al., 2019)	Linear mixed models	ITT analysis	Cohen's d	4 weeks (post-treatment)	WEMWBS	N	Total score	0.43	.
				8 weeks				-0.47	.
United Kingdom (Hayward et al., 2021)	Linear mixed models	ITT analysis	Cohen's d	16 weeks (post-treatment)	CHOICE SF	N	Mean (GiVE vs TAU)	1.03	.
							Mean (SC vs TAU)	0.73	.
							Mean (SC vs GiVE)	-0.30	.
							Goal Rating (GiVE vs TAU)	1.10	.

							Goal Rating (SC vs TAU)	0.57	.
							Goal Rating (SC vs GiVE)	-0.53	.
				28 weeks			Mean (GiVE vs TAU)	0.62	.
							Mean (SC vs TAU)	0.68	.
							Mean (SC vs GiVE)	0.06	.
							Goal Rating (GiVE vs TAU)	0.92	.
							Goal Rating (SC vs TAU)	0.82	.
							Goal Rating (SC vs GiVE)	-0.10	.
The Netherlands (Wiersma et al., 2004)	T-tests	ITT analysis	Not reported	Baseline & post-treatment (9 months)	WHOQOL-BREF	Y	Q1 Quality of life	.	**<0.05***
							Q2 Satisfaction with health	.	n.s
							Total score (all items)	.	n.s
				Baseline & 18-month follow-up			Q1 Quality of life	.	n.s
							Q2 Satisfaction with health	.	**<0.05***
							Total score (all items)	.	**<0.05***
Switzerland & Germany (Westermann et al, 2020)	Mixed-model analyses	ITT analysis	Cohen's d	8 weeks (post-treatment)	WHOQOL-BREF	N	Psychological	0.30	**0.007***
					ISMI	N	Total score	-0.36	**0.002***
Canada (Konsztowicz et al., 2021)	ANCOVA	Per-protocol analysis	η2 partial	4 weeks (post-treatment)	ISMI	Y	Total score	0.04	0.28
The Netherlands (Pot-Kolder et al., 2018)	Multi-level regression analysis	ITT analysis	Cohen's d	12 weeks (post-treatment)	ISMI	N	Total score	-0.11	0.540
				6 months				-0.44	**0.020***
The Netherlands (Pos et al., 2019)	Linear mixed models	ITT analysis	Cohen's d	3 months (post-treatment)	ISMI	N	Total score	.	0.384
				6 months				.	0.449
United Kingdom (Cella et al., 2022)	ANCOVA	ITT analysis	Cohen's d	12 weeks (post-treatment)	GAS	Y	GAS score	1.48	**0.001***
				12 weeks (post-treatment)	SENS	N	Total score	–0.34	0.196

Canada (Naeem et al, 2016)	ANCOVA	ITT analysis	Cohen’s d	16 weeks (post-treatment)	WHODAS 2.0	N		1.99	**0.000***
Brazil (Zimmer et al., 2007)	Repeated measures ANOVA	Completer analysis	Not reported	12 weeks (post-treatment)	WHOQOL-BREF	N	Psychological	.	**0.021***
							Physical	.	0.384
							Social	.	0.414
							Environmental	.	0.215
							Overall score	.	**(-)0.000***
Greece (Rakitzi et al., 2016)	General linear model	Per-protocol analysis	Cohen’s d	10 weeks (post-treatment)	WHOQOL-BREF	N	Overall score	0.17	0.60
				3 months				-0.69	**(-)0.03***
United Kingdom (Chadwick et al., 2016)	ANCOVA	ITT analysis	Cohen’s d	12 weeks (post-treatment)	CHOICE	N	Severity	0.327	0.056
							Satisfaction	0.421	**0.020***
				10 months			Severity	0.197	0.277
							Satisfaction	0.185	0.356
Germany (Böge et al., 2021)	ANCOVA	ITT analysis	Cohen’s d	4 weeks (post-treatment)	WHOQOL-BREF	N	Psychological	0.29	**0.01***
							Physical	0.51	**0.03***
							Social	0.27	0.17
							Environmental	0.53	**0.01***
United Kingdom (Schrank et al., 2016)	ANCOVA	ITT analysis	Cohen’s d	11 weeks (post-treatment)	WEMWBS	Y	Total score	0.15	0.37
				11 weeks (post-treatment)	RES	N	Mean score	0.22	0.16
China (Chu et al., 2022)	ANOVA	ITT analysis	Not reported	7 weeks (post-treatment)	WEMWBS (Short)	Y	Total score	.	**0.001***
China (Fung et al., 2011)	Repeated measures ANCOVA	Not reported	Not specified	Mid-way & post-treatment	ISMI	Y	Stereotype awareness	0.026	0.474
							Stereotype agreement	0.026	0.484
							Self-concurrence	0.099	0.054
							Self-esteem decrement	0.147	**0.011***
				Follow up (2-, 4- & 6-months post-treatment)			Self-esteem decrement	0.096	0.096

Taiwan (Shih et al, 2022)	Generalised estimating equations	ITT analysis	Not specified	6 weeks (post-treatment)	ISMI	Y	Total score	0.760	**0.012***
				1 month after end of treatment				0.049	0.876
Saudi Arabia (Hasan & Alasmee, 2022)	ANOVA	ITT analysis	Not specified	Group x Time (both timepoints)	ISMI	Y	Total score	0.59	**<0.001***
				26 weeks (post-treatment)				.	**0.02***
				6 months				.	**0.025***
United States of America (Yanos et al, 2019)	Mixed effects modelling	ITT analysis	Not specified	Group x Time (both timepoints)	ISMI	Y	Total score	0.25	0.09
							Stereotype endorsement	0.28	0.11
							Alienation	0.37	0.14
							Social withdrawal	0.34	**0.03***
							Discrimination experiences	0.01	0.75
China (Chen et al., 2021)	ANCOVA	Per-protocol analysis	η2 partial	8 weeks (post-treatment)	SQLS	N	Psychosocial	0.103	0.013
							Motivation & energy	0.06	0.062
							Symptoms & side effects	0.027	0.216
Germany (Moritz et al., 2014)	ANCOVA	ITT analysis	η2 partial	3 years	WHOQOL-BREF	N	Psychological	0.024	0.12
							Physical	0.020	0.14
							Social	0.002	0.13
							Environmental	0.014	0.25
							Global	0.037	**0.05**
							Total (5 subscales)	0.029	0.08
Germany (Moritz et al., 2018)	ANOVA	Per-protocol analysis	η2 partial	Post-treatment	WHOQOL-BREF	N	Total score	.	>0.30
				6 months				.	>0.30
				Post-treatment	SUSE	Y	Main effect (group x time x 5 subscales)	0.378	**<0.001***
				6 months			Main effect (group x time x 5 subscales)	0.403	**<0.001***

United Kingdom (Wykes et al., 2023)	Linear mixed model	ITT analysis	Cohen’s d	15 weeks (post-treatment)	GAS	Y	Group vs 1-1 Independent vs TAU Group + 1-1 vs TAU	0.07 0.07 0.57	0.655 0.777 **0.003***
				6 months			Group vs 1-1 Independent vs TAU Group + 1-1 vs TAU	0.20 -0.14 0.27	0.319 0.645 0.262
France (d’Amato et al. 2011)	Student t-tests (pre-post)	ITT analysis	Cohen’s d	7 weeks (post-treatment)	SQLS	N	Not reported		
				Intervention				.	0.1
				Control				.	0.06
Singapore (Tan & King 2013)	Repeated measures ANOVA	Completer analysis	Not reported	Group x Time 12 weeks (post-treatment), 6 months, & 12 months)	WHOQOL-BREF	N	Not reported	.	n.s
Australia (Bryce et al., 2018)	Linear mixed-effect analyses	Completer analysis‡	Cohen’s d	10 weeks (post-treatment)	EUROHIS-QOL	N	Total score	.	0.75
Australia (Contreras et al. 2018)	ANOVA	Completer analysis	Not reported	10 weeks (post-treatment)	EUROHIS-QOL	N	Total score	.	0.80
Australia (Hodge et al. 2010)	Repeated measures ANOVA (pre & post analysis)	Completer analysis	Not reported	Baseline compared with 15 weeks (post-treatment)	WHOQOL-BREF	N	Psychological Physical Social Environmental	. . . . .	0.423 0.292 0.314 0.174
				Post-treatment compared with 4 months			Psychological Physical Social Environmental	. . . .	0.520 0.868 0.395 0.121
The Netherlands (Castelein et al., 2008)	Mixed models /general linear model	ITT analysis	Not reported	8 months (post-treatment)	WHOQOL-BREF	N	Total score	.	0.87

Brazil (Orsi et al., 2021)	Mann Whitney test	Completer analysis	Not reported	6 months (post-treatment)	RAS	N	Total score	.	0.13
				6 months (post-treatment)	ISMI	N	Total score	.	**0.03***
The Netherlands (Vogel et al., 2023)	Linear mixed models	ITT analysis†	Not reported	8 months (post-treatment)	RAS	Y	Total score	.	0.481
				12 months				.	**(-)0.011***
				8 months (post-treatment)	ISMI (Brief)	N	Total score	.	0.160
				12 months				.	0.481
Austria (Sachs et al., 2012)	Repeated measures ANOVA	Completer analysis	Not reported	6 weeks (post-treatment)	WHOQOL-BREF	N	Psychological	.	0.490
							Physical	.	0.162
							Social	.	0.052
							Environmental	.	0.904
United Kingdom (Longden et al., 2022)	Linear regression models	ITT analysis	Not reported	26 weeks (post-treatment)	QPR	N	Total score	.	.
United Kingdom (Gumley et al., 2017)	Repeated measures regression	ITT analysis	Not reported	5 months (post-treatment)	QPR	N	Total score	.	.
United Kingdom (Steel et al, 2020)	Linear mixed models	ITT Analysis	Cohen's d	3 months (post-treatment)	WEMWBS	N	Total score	-0.13	0.34
				9 months				0.06	0.68
The Netherlands (de Jong et al., 2019)	Multi-level analyses	ITT analysis	Not reported	40 weeks (post-treatment)	ISMI	N	Total score	.	n.s
				6 months				.	n.s
The Netherlands (Pijnenborg et al, 2019)	Multi-level modelling	ITT analysis	Not reported	6 weeks (post-treatment)	ISMI	Y	Total score	.	n.s
				6 months				.	**(-)<0.05***

Abbreviations: ITT analysis, Intention-to-treat analysis. ANOVA, Analysis of Variance. ANCOVA, Analysis of Covariance. TAU, Treatment as usual. Y, yes. N, no.

Note: Minus values (-) before significant p-values indicates an effect favouring the control group.

† Dropouts from intervention arm replaced from control group.

‡ Intention-to-treat analysis completed but not reported.

3.6 Risk of bias

All studies of CBT interventions that used the WEMWBS, the CHOICE and the GAS were of good methodological quality, with overall CTAM scores ranging from 74 to 92 (Cella et al. 2022; Freeman, Pugh et al., 2021; Freeman, Waite et al., 2015; Freeman, Dunn et al., 2015; Freeman, Emsley et al., 2021; Garety et al., 2021; Hayward et al., 2021; Sheaves et al., 2019). Studies of CBT-informed interventions using the WHOQOL-BREF varied in quality: one study (Wiersma et al., 2004) received a CTAM score of 61, indicating risk of bias, while another (Westermann et al., 2020) was of good methodological quality (CTAM score: 82). Two other CBT-informed interventions received CTAM scores from 81 to 84 (Pos et al., 2019; Pot-Kolder et al., 2018), however Konsztowicz and colleagues (2021) scored 32. Studies of mindfulness interventions were of relatively high methodological quality, receiving scores of 77 (Böge et al., 2021) and 87 (Chadwick et al., 2016).

Studies of IPT varied in methodological quality: one study received a CTAM score of 70 (Rakitzi et al., 2016), while the other study (Zimmer et al., 2007) received a CTAM score of 58, indicating risk of bias. Two studies of metacognitive training had acceptable methodological quality, scoring 67 and 70 (Moritz et al. 2014; Moritz et al. 2018), although one study (Chen et al., 2021) scored 63, indicating risk of bias.

Studies of other psychosocial interventions including TwV, ACTdp, PoMeT, MERIT, and REFLEX were of high methodological quality, with overall CTAM scores ranging from 74 to 87 (Longden et al., 2022; Gumley et al., 2017; Steel et al., 2020; De Jong et al, 2019; Pijnenbourg et al., 2019), although the study of TAR (Sachs et al., 2012) received a score of 36 (indicating high risk of bias).

Self-stigma reduction interventions varied: one study (Shih et al. 2022) scored 53, another study was of acceptable methodological quality and scored 68 (Fung et al., 2011), and two studies were of relatively high methodological quality, scoring 79 (Hasan & Alasmee, 2022) and 81 (Yanos et al. 2019). CR studies also varied. Wykes and colleagues (2023), who used the GAS, scored 91 on the CTAM. Two CR studies that used quality of life as an outcome were of relatively good methodological quality, both receiving a score of 74 (Tan & King, 2013; Bryce et al., 2018), one study scored 65 (d'Amato et al., 2011), and two studies received scores of

56 and 49 on the CTAM, indicating risk of bias (Contreras et al., 2018; Hodge et al., 2010). Of the three studies of peer support interventions, two studies received low CTAM scores of 18 (Orsi et al., 2021) and 33 (Vogel et al. 2023) indicating high risk of bias, primarily due to a lack of true random allocation, blinded outcome assessments, and measurement of fidelity to the intervention. However, one study of a guided peer support group received a score of 78 (Castelein et al., 2008).

4. Discussion

There is increasing recognition that PROMs are key in the evaluation of psychosocial interventions for schizophrenia. In recent years, PROMs have been developed that reflect the views and priorities of service users and are considered gold standard. This review explores which of these PROMs are used in psychosocial interventions and how they are impacted.

4.1 Effect of psychosocial interventions on patient-centred PROMs

There was evidence across multiple RCTs of high methodological quality CBTp interventions delivered in an individual format positively impact mental wellbeing, as measured by the WEMWBS (Freeman, Pugh et al., 2014; Freeman, Dunn et al., 2015; Freeman Emsley et al., 2021; Freeman, Waite et al., 2015; Freeman, Garety et. al., 2021). There did not appear to be a differential impact according to the length of the intervention considered. It is unclear whether improvements in wellbeing following CBTp are sustained - in the Feeling Safe study, which had the longest follow up period (12 months), improvements on the WEMWBS were not sustained (Freeman, Emsley et al. 2021).

There was also evidence from several RCTs of high methodological quality that CBTp-informed interventions have a sustained positive effect on psychological recovery, as measured by the CHOICE (Freeman, Emsley et al. 2021; Freeman, Dunn et al., 2015; Hayward et al., 2021; Hayward et al., 2021). There was also early evidence for PBCT, which combines CBTp with mindfulness (Chadwick et. al., 2016). However, interpretation of results was limited due to differences in reporting of CHOICE domains, and future studies should report results for all CHOICE domains (Severity, Satisfaction, and patient-chosen outcomes) to enable conclusions to be drawn. The findings in the current review reflect the focus of CBTp being improvements in distress, functioning, and psychological recovery over symptom reduction (Birchwood & Trower, 2006).

Early evidence also suggests a positive effect of CBT for sleep on mental wellbeing (Freeman, Waite et al., 2015; Sheaves et al., 2019). Such an effect is plausible: previous research suggests improved sleep leads to improved mental wellbeing for people with schizophrenia, and CBT interventions for sleep have been found to improve wellbeing for people with insomnia, with poor sleep identified as a mediator of paranoid ideation among university students (Freeman et al., 2017; Espie et al., 2019). Although studies of CBT for sleep in the current review were of good methodological quality, powered RCTs which include the WEMWBS as an outcome are needed to draw meaningful conclusions.

It remains unclear whether CBT-informed interventions have a positive effect on internalised stigma. Two studies of good methodological quality found mixed results, perhaps reflecting differences in the interventions being considered (Pot-Kolder et al., 2018; Pos et al., 2019). This is perhaps to be expected given that the CBT interventions considered do not explicitly target self-stigma.

Studies in the current review adopted different approaches to scoring and reporting the most used measure of quality of life, the WHOQOL-BREF, which presents a challenge to interpretation of findings, and future studies should ensure this measure is scored as intended and all domain scores are reported. There was some evidence that CBTp interventions positively impact quality of life, however, selective reporting of WHOQOL-BREF domain scores limits interpretation (Wiersma et al., 2004; Westermann et al, 2020). These findings are inconsistent with previous research indicating that CBTp does not lead to improvements quality of life (Laws, Darlington, Kondel, McKenna & Jauhar, 2018); this may reflect that quality of life is a multi-faceted construct measured using a variety of methods, including observer-rated measures.

Notably, the current review suggests that IPT, which is informed by CBT, may reduce quality of life, and authors of both studies suggested that increased service user insight into their difficulties may explain these findings (Zimmer et al., 2007; Rakitzi et al. 2016). This is supported by previous research which has found an inverse relationship between insight and quality of life, and studies have suggested that stigma might moderate this relationship (Kurtz & Tolman, 2011; Staring et al., 2009; Lysaker, Roe & Yanos, 2006). There was little evidence that other psychosocial interventions improve quality of life for people with schizophrenia, including metacognitive training (Moritz et al., 2014; Moritz et al., 2018; Chen et al., 2021), cognitive remediation (Hodge et al. 2010; Tan & King, 2013; Bryce et al., 2018; Contreras et al. 2018; d'Amato et al. 2011) and peer support (Castelein et al., 2008). Quality of life is a multi-faceted construct, and studies should take a consistent approach to its measurement, perhaps prioritising the use of the SQLS as an outcome as the development of this measure was informed by input from people with schizophrenia.

Evidence for an effect of group PPT on mental wellbeing was inconclusive. Two studies of relatively good methodological quality had different findings: a Pilot RCT found no effect (Schrank et al., 2014) while a larger RCT did find an effect (Chu et al., 2022). Differential findings might be due to lower rates of intervention completion in the UK study (Schrank et al., 2014). Differing results may be explained by sample size; however, Chu and colleagues (2022) also suggest that a group format may be more acceptable for people raised in the more collectivist culture of Hong Kong. Further clinical trials across different populations are needed to assess the impact of PPT on mental wellbeing for people with schizophrenia.

Studies that considered personal recovery as an outcome varied in the type of intervention considered, making it challenging to draw conclusions. Talking with Voices (TwV), appears promising for improving scores on the QPR, but a larger RCT with statistical analysis is needed (Longden et al., 2022). There was no evidence for a positive effect of ACTdp on recovery from the one included study that considered this intervention, although this was an underpowered Pilot trial involving only 29 participants (Gumley et al., 2017). ACT is emerging a promising psychosocial intervention for people with psychosis (Wakefield, Roebuck & Boyden, 2018), and future studies of ACT interventions for people with schizophrenia should consider using gold-standard patient-centred PROMs such as the QPR or the WEMWBS as outcomes, which would reflect the theoretical underpinning of ACT. There was also no evidence in the current review that peer support interventions positively impact personal recovery as measured by the RAS (Orsi et al., 2021; Vogel et al., 2023). This may reflect that these peer support groups were not manualised, with associated challenges assessing fidelity to the intervention.

There was early evidence from a Pilot study of good methodological quality that V-Nest supports people with negative symptoms to achieve their individualised recovery goals (Cella et al., 2022). While a large scale RCT is needed, confidence intervals indicated a moderate effect size of at least 0.61. Only one other study used the GAS as an outcome, but results were also promising for the impact of CR on recovery goal attainment (Wykes et al., 2023). Patient-chosen outcomes (as measured on the CHOICE) were also successfully used in two other studies of CBT interventions, as described above (Freeman, Dunn et al., 2015; Freeman, Waite et al., 2015). These studies demonstrate that recovery goal attainment can be used as an outcome in psychosocial intervention studies, capturing the multi-faceted and individualised nature of recovery with an outcome that is patient-chosen and reflects service user priorities. In the V-Nest study, the GAS was chosen as the primary outcome by service users with negative symptoms, and researchers should similarly consult with service users in the process of designing studies of psychosocial interventions for schizophrenia.

There was evidence from studies of high methodological quality that self-stigma reduction interventions reduce internalised stigma (Hasan & Alasmee, 2022; Yanos et al, 2019), although findings were not consistent across subscales, and some studies were of lower methodological quality (Fung et al., 2011; Shih et al, 2022). The strongest evidence came from the largest study of 278 participants, which delivered an individual self-stigma reduction intervention (Hasan & Alasmee, 2022). There was mixed evidence from the current review for the effect of peer support interventions on internalised stigma (Orsi et al., 2021; Vogel et al., 2023). However, the lack of clarity about the content of these interventions makes comparisons challenging, and while one study found an effect of the intervention on the ISMI, conclusions cannot be drawn as the CTAM score suggests high risk of bias (Orsi et al., 2021).

4.2 Strengths & limitations

The current review considers a wide range of outcomes that are aligned with recovery-based principles, reflecting increasing interest in developing mental health provision to become more recovery-oriented (Department of Health, 2011; Patel et al., 2018). Additionally, while the inclusion criteria for the outcomes considered in this review were informed by the work of previous researchers in the field (Rose et al., 2011; Trujols et al., 2013), deciding whether a PROM met the inclusion criteria was to some degree a subjective process. This was likely mitigated by the inclusion of a second rater in the screening process at several stages.

The consideration of a wide range of psychosocial interventions in the current review is a strength, as it gives a broad indication of whether current mental health provision for people with schizophrenia effects outcomes for which patient perspectives are at the forefront. However, the resulting heterogeneity in the interventions considered (in terms of theoretical underpinnings, length, and group and individual format) limits the scope of generalisations about whether such interventions positively impact PROMs.

4.3 Implications

Service users with a diagnosis of schizophrenia have priorities for treatment outcomes, and traditional clinical outcome measures do not always reflect these priorities (Kinter, Schmeding, Rudolph, dosReis & Bridges, 2009). If outcomes that reflect service user preferences are not considered, the effectiveness of psychosocial interventions may be partially distorted (Staley, Kabir & Szmukler, 2013). Involving service users as collaborators in mental health research is becoming a core consideration in conducting research and is now required by organisations funding mental health research, for example in the UK and the Netherlands (Den Oudendammer et al., 2019; Staley et al., 2013). The benefits of doing so have been outlined elsewhere and include more ethical research, ensuring that meaningful questions are being asked, improving study design, and improving recruitment (Staley & Minogue, 2006; Szmukler, 2009). Efforts to involve service users as collaborators should be extended to the development of outcome measures, as described in The SURE model (Rose et al., 2011). Going beyond consideration of a measure’s psychometric properties in the process of development is vitally important because outcomes are often used to make inferences about the effectiveness of interventions, and the absence of service user input in their development may be a threat to content validity (Trujols et al., 2013; Hagell, Reimer & Nyberg, 2009). Service users can also be collaborators in the development of clinician-rated outcome measures. A significant barrier to this will be that well established clinician-rated measures are widely used (e.g. Overall & Gorham, 1962; Haddock, McCarron, Tarrier & Faragher, 1999; Hall, 1995) and enable comparisons to be made between studies.

PROMs of interest in the current review were used as secondary outcomes in approximately two thirds of included studies. This likely reflects that the choice of primary outcome will be based on the theoretical underpinning of the intervention under consideration (e.g. positive symptoms in CBTp studies). However, it also highlights a significant lack of PROMs measuring symptoms that were developed with qualitative participatory research techniques. In the current review, 92% of PROMs did not measure symptoms. Concern about whether self-report measures of symptoms are valid for use in this population may reflect concerns about impaired insight in schizophrenia leading to inaccurate reporting, and gold-standard symptom measures such as the SNS should be used in intervention studies in addition to observer rated measures.

Widespread adoption of gold-standard patient-centred PROMs may enable more conclusive answers about the extent to which psychosocial interventions lead to improvements in the lives of people with schizophrenia. Future studies should ensure consistency in which gold-standard PROMs are used, for example prioritising the use of the SQLS as a measure of quality of life. Translation of gold-standard PROMs into multiple languages will facilitate the adoption of these measures into clinical trials.

4.4 Conclusions

A range of PROMs developed using qualitative participatory research methods are used in psychosocial intervention studies for schizophrenia. There is evidence that self-stigma reduction and CBTp interventions lead to improvements in some of these gold-standard measures. Evidence from the current review is less clear for other psychosocial interventions due to heterogeneity in the studies considered. The current review only considered gold-standard PROMs and these measures should be prioritised as outcomes in future psychosocial intervention studies. Researchers developing patient-reported and clinician-rated outcome measures should ensure that service users are collaborators and actively part of the research team from the project development to its dissemination.

References

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal*, *16*(4), 11–23. https://doi.org/10.1037/h0095655

Axelsson, E., Lindsäter, E., Ljótsson, B., Andersson, E., & Hedman-Lagerlöf, E. (2017). The 12-item Self-Report World Health Organization Disability Assessment Schedule (WHODAS) 2.0 Administered Via the Internet to Individuals With Anxiety and Stress Disorders: A Psychometric Investigation Based on Data From Two Clinical Trials. *JMIR Mental Health*, *4*(4), e58. https://doi.org/10.2196/mental.7497

Bass, M., Dawkin, M., Muncer, S., Vigurs, S., & Bostock, J. (2016). Validation of Warwick-Edinburgh Mental Well-being Scale (WEMWBS) in a population of people using Secondary Care Mental Health Services. *Journal of Mental Health*, *25*(4), 323–329. https://doi.org/10.3109/09638237.2015.1124401

Birchwood, M., & Trower, P. (2006). The future of cognitive-behavioural therapy for psychosis: Not a quasi-neuroleptic. *British Journal of Psychiatry*, *188*(2), 107–108. https://doi.org/10.1192/bjp.bp.105.014985

Bock, T., & Priebe, S. (2005). Psychosis Seminars: An Unconventional Approach. *Psychiatric Services*, *56*(11), 1441–1443. https://doi.org/10.1176/appi.ps.56.11.1441

Böge, K., Hahne, I., Bergmann, N., Wingenfeld, K., Zierhut, M., Thomas, N., Ta, T. M. T., Bajbouj, M., & Hahn, E. (2021). Mindfulness-based group therapy for in-patients with schizophrenia spectrum disorders – Feasibility, acceptability, and preliminary outcomes of a rater-blinded randomized controlled trial. *Schizophrenia Research*, *228*, 134–144. https://doi.org/10.1016/j.schres.2020.12.008

Booth, A., Clarke, M., Dooley, G., Ghersi, D., Moher, D., Petticrew, M., & Stewart, L. (2012). The nuts and bolts of PROSPERO: An international prospective register of systematic reviews. *Systematic Reviews*, *1*(1), 2. https://doi.org/10.1186/2046-4053-1-2

Boyd, J. E., Adler, E. P., Otilingam, P. G., & Peters, T. (2014). Internalized Stigma of Mental Illness (ISMI) Scale: A multinational review. *Comprehensive Psychiatry*, *55*(1), 221–231. https://doi.org/10.1016/j.comppsych.2013.06.005

Boyd, J. E., Otilingam, P. G., & DeForge, B. R. (2014). Brief version of the Internalized Stigma of Mental Illness (ISMI) scale: Psychometric properties and relationship to depression, self esteem, recovery orientation, empowerment, and perceived devaluation and discrimination. *Psychiatric Rehabilitation Journal*, *37*(1), 17–23. https://doi.org/10.1037/prj0000035

Boyd Ritsher, J., Otilingam, P. G., & Grajales, M. (2003). Internalized stigma of mental illness: Psychometric properties of a new measure. *Psychiatry Research*, *121*(1), 31–49. https://doi.org/10.1016/j.psychres.2003.08.008

Bryce, S. D., Rossell, S. L., Lee, S. J., Lawrence, R. J., Tan, E. J., Carruthers, S. P., & Ponsford, J. L. (2018). Neurocognitive and Self-efficacy Benefits of Cognitive Remediation in Schizophrenia: A Randomized Controlled Trial. *Journal of the International Neuropsychological Society*, *24*(6), 549–562. https://doi.org/10.1017/S1355617717001369

Buck, B., Gagen, E. C., Halverson, T. F., Nagendra, A., Ludwig, K. A., & Fortney, J. C. (2022). A systematic search and critical review of studies evaluating psychometric properties of patient-reported outcome measures for schizophrenia. *Journal of Psychiatric Research*, *147*, 13–23. https://doi.org/10.1016/j.jpsychires.2021.12.053

Cairns, A., Kavanagh, D., Dark, F., & McPhail, S. M. (2015). Setting measurable goals with young people: Qualitative feedback from the Goal Attainment Scale in youth mental health. *British Journal of Occupational Therapy*, *78*(4), 253–259. https://doi.org/10.1177/0308022614562584

Castelein, S., Bruggeman, R., Van Busschbach, J. T., Van Der Gaag, M., Stant, A. D., Knegtering, H., & Wiersma, D. (2008). The effectiveness of peer support groups in psychosis: A randomized controlled trial. *Acta Psychiatrica Scandinavica*, *118*(1), 64–72. https://doi.org/10.1111/j.1600-0447.2008.01216.x

Cella, M., Preti, A., Edwards, C., Dow, T., & Wykes, T. (2017). Cognitive remediation for negative symptoms of schizophrenia: A network meta-analysis. *Clinical Psychology Review*, *52*, 43–51. https://doi.org/10.1016/j.cpr.2016.11.009

Cella, M., Tomlin, P., Robotham, D., Green, P., Griffiths, H., Stahl, D., & Valmaggia, L. (2022). Virtual Reality Therapy for the Negative Symptoms of Schizophrenia (V-NeST): A pilot randomised feasibility trial. *Schizophrenia Research*, *248*, 50–57. https://doi.org/10.1016/j.schres.2022.07.013

Chadwick, P. (2006). *Person-based cognitive therapy for distressing psychosis*. J. Wiley & sons.

Chadwick, P., Strauss, C., Jones, A.-M., Kingdon, D., Ellett, L., Dannahy, L., & Hayward, M. (2016). Group mindfulness-based intervention for distressing voices: A pragmatic randomised controlled trial. *Schizophrenia Research*, *175*(1–3), 168–173. https://doi.org/10.1016/j.schres.2016.04.001

Chen, Q., Sang, Y., Ren, L., Wu, J., Chen, Y., Zheng, M., Bian, G., & Sun, H. (2021). Metacognitive training: A useful complement to community-based rehabilitation for schizophrenia patients in China. *BMC Psychiatry*, *21*(1), 38. https://doi.org/10.1186/s12888-021-03039-y

Chu, M. H., Lau, B., Leung, J., Chan, S. C., Tang, B., Lau, C., Newby, C., Chiu, R., Lo, W. T., Schrank, B., & Slade, M. (2022). Positive psychotherapy for psychosis in Hong Kong: A randomized controlled trial. *Schizophrenia Research*, *240*, 175–183. https://doi.org/10.1016/j.schres.2021.12.044

Contreras, N. A., Tan, E. J., Lee, S. J., Castle, D. J., & Rossell, S. L. (2018). Using visual processing training to enhance standard cognitive remediation outcomes in schizophrenia: A pilot study. *Psychiatry Research*, *262*, 494–499. https://doi.org/10.1016/j.psychres.2017.09.031

Corrigan, P. W., Giffort, D., Rashid, F., Leary, M., & Okeke, I. (1999). Recovery as a Psychological Construct. *Community Mental Health Journal*, *35*(3), 231–239. https://doi.org/10.1023/A:1018741302682

Corrigan, P. W., Salzer, M., Ralph, R. O., Sangster, Y., & Keck, L. (2004). Examining the Factor Structure of the Recovery Assessment Scale. *Schizophrenia Bulletin*, *30*(4), 1035–1041. https://doi.org/10.1093/oxfordjournals.schbul.a007118

Crawford, M. J., Robotham, D., Thana, L., Patterson, S., Weaver, T., Barber, R., Wykes, T., & Rose, D. (2011). Selecting outcome measures in mental health: The views of service users. *Journal of Mental Health*, *20*(4), 336–346. https://doi.org/10.3109/09638237.2011.577114

Czachowski, S., Seed, P., Schofield, P., & Ashworth, M. (2011). Measuring Psychological Change during Cognitive Behaviour Therapy in Primary Care: A Polish Study Using 'PSYCHLOPS' (Psychological Outcome Profiles). *PLoS ONE*, *6*(12), e27378. https://doi.org/10.1371/journal.pone.0027378

d'Amato, T., Bation, R., Cochet, A., Jalenques, I., Galland, F., Giraud-Baro, E., Pacaud-Troncin, M., Augier-Astolfi, F., Llorca, P.-M., Saoud, M., & Brunelin, J. (2011). A randomized, controlled trial of computer-assisted cognitive remediation for schizophrenia. *Schizophrenia Research*, *125*(2–3), 284–290. https://doi.org/10.1016/j.schres.2010.10.023

De Jong, S., Van Donkersgoed, R. J. M., Timmerman, M. E., Aan Het Rot, M., Wunderink, L., Arends, J., Van Der Gaag, M., Aleman, A., Lysaker, P. H., & Pijnenborg, G. H. M. (2019). Metacognitive reflection and insight therapy (MERIT) for patients with schizophrenia. *Psychological Medicine*, *49*(2), 303–313. https://doi.org/10.1017/S0033291718000855

Den Oudendammer, W. M., Noordhoek, J., Abma-Schouten, R. Y., Van Houtum, L., Broerse, J. E. W., & Dedding, C. W. M. (2019). Patient participation in research funding: An overview of when, why and how amongst Dutch health funds. *Research Involvement and Engagement*, *5*(1), 33. https://doi.org/10.1186/s40900-019-0163-1

Department of Health. (2011). *No Health Without Mental Health: A Cross-Government Mental Health Outcomes Strategy for People of All Ages.* HM Government. https://assets.publishing.service.gov.uk/media/5a7c348ae5274a25a914129d/dh_124058.pdf

Dollfus, S., Mach, C., & Morello, R. (2016). Self-Evaluation of Negative Symptoms: A Novel Tool to Assess Negative Symptoms. *Schizophrenia Bulletin*, *42*(3), 571–578. https://doi.org/10.1093/schbul/sbv161

Dollfus, S., Mucci, A., Giordano, G. M., Bitter, I., Austin, S. F., Delouche, C., Erfurth, A., Fleischhacker, W. W., Movina, L., Glenthøj, B., Gütter, K., Hofer, A., Hubenak, J., Kaiser, S., Libiger, J., Melle, I., Nielsen, M. Ø., Papsuev, O., Rybakowski, J. K., … Galderisi, S. (2022). European Validation of the Self-Evaluation of Negative Symptoms (SNS): A Large Multinational and Multicenter Study. *Frontiers in Psychiatry*, *13*, 826465. https://doi.org/10.3389/fpsyt.2022.826465

Doward, L. C., Gnanasakthy, A., & Baker, M. G. (2010). Patient reported outcomes: Looking beyond the label claim. *Health and Quality of Life Outcomes*, *8*(1), 89. https://doi.org/10.1186/1477-7525-8-89

Dua, T., Barbui, C., Clark, N., Fleischmann, A., Poznyak, V., Van Ommeren, M., Yasamy, M. T., Ayuso-Mateos, J. L., Birbeck, G. L., Drummond, C., Freeman, M., Giannakopoulos, P., Levav, I., Obot, I. S., Omigbodun, O., Patel, V., Phillips, M., Prince, M., Rahimi-Movaghar, A., … Saxena, S. (2011). Evidence-Based Guidelines for Mental, Neurological, and Substance Use Disorders in Low- and Middle-Income Countries: Summary of WHO Recommendations. *PLoS Medicine*, *8*(11), e1001122. https://doi.org/10.1371/journal.pmed.1001122

Espie, C. A., Emsley, R., Kyle, S. D., Gordon, C., Drake, C. L., Siriwardena, A. N., Cape, J., Ong, J. C., Sheaves, B., Foster, R., Freeman, D., Costa-Font, J., Marsden, A., & Luik, A. I. (2019). Effect of Digital Cognitive Behavioral Therapy for Insomnia on Health, Psychological Well-being, and Sleep-Related Quality of Life: A Randomized Clinical Trial. *JAMA Psychiatry*, *76*(1), 21. https://doi.org/10.1001/jamapsychiatry.2018.2745

Freeman, D., Dunn, G., Startup, H., Pugh, K., Cordwell, J., Mander, H., Černis, E., Wingham, G., Shirvell, K., & Kingdon, D. (2015). Effects of cognitive behaviour therapy for worry on persecutory delusions in patients with psychosis (WIT): A parallel, single-blind, randomised controlled trial with a mediation analysis. *The Lancet Psychiatry*, *2*(4), 305–313. https://doi.org/10.1016/S2215-0366(15)00039-5

Freeman, D., Emsley, R., Diamond, R., Collett, N., Bold, E., Chadwick, E., Isham, L., Bird, J. C., Edwards, D., Kingdon, D., Fitzpatrick, R., Kabir, T., Waite, F., Carr, L., Causier, C., Černis, E., Kirkham, M., Lambe, S., Lister, R., … Twivy, E. (2021). Comparison of a theoretically driven cognitive therapy (the Feeling Safe Programme) with befriending for the treatment of persistent persecutory delusions: A parallel, single-blind, randomised controlled trial. *The Lancet Psychiatry*, *8*(8), 696–707. https://doi.org/10.1016/S2215-0366(21)00158-9

Freeman, D., Pugh, K., Dunn, G., Evans, N., Sheaves, B., Waite, F., Černis, E., Lister, R., & Fowler, D. (2014). An early Phase II randomised controlled trial testing the effect on persecutory delusions of using CBT to reduce negative cognitions about the self: The potential benefits of enhancing self-confidence. *Schizophrenia Research*, *160*(1–3), 186–192. https://doi.org/10.1016/j.schres.2014.10.038

Freeman, D., Sheaves, B., Goodwin, G. M., Yu, L.-M., Nickless, A., Harrison, P. J., Emsley, R., Luik, A. I., Foster, R. G., Wadekar, V., Hinds, C., Gumley, A., Jones, R., Lightman, S., Jones, S., Bentall, R., Kinderman, P., Rowse, G., Brugha, T., … Espie, C. A. (2017). The effects of improving sleep on mental health (OASIS): A randomised controlled trial with mediation analysis. *The Lancet Psychiatry*, *4*(10), 749–758. https://doi.org/10.1016/S2215-0366(17)30328-0

Freeman, D., Waite, F., Startup, H., Myers, E., Lister, R., McInerney, J., Harvey, A. G., Geddes, J., Zaiwalla, Z., Luengo-Fernandez, R., Foster, R., Clifton, L., & Yu, L.-M. (2015). Efficacy of cognitive behavioural therapy for sleep improvement in patients with persistent delusions and hallucinations (BEST): A prospective, assessor-blind, randomised controlled pilot trial. *The Lancet Psychiatry*, *2*(11), 975–983. https://doi.org/10.1016/S2215-0366(15)00314-4

Fung, K. M. T., Tsang, H. W. H., & Cheung, W. (2011). Randomized controlled trial of the self-stigma reduction program among individuals with schizophrenia. *Psychiatry Research*, *189*(2), 208–214. https://doi.org/10.1016/j.psychres.2011.02.013

Garety, P., Ward, T., Emsley, R., Greenwood, K., Freeman, D., Fowler, D., Kuipers, E., Bebbington, P., Rus-Calafell, M., McGourty, A., Sacadura, C., Collett, N., James, K., & Hardy, A. (2021). Effects of SlowMo, a Blended Digital Therapy Targeting Reasoning, on Paranoia Among People With Psychosis: A Randomized Clinical Trial. *JAMA Psychiatry*, *78*(7), 714. https://doi.org/10.1001/jamapsychiatry.2021.0326

Giffort D, Schmook A, Woody C, Vollendorf C, Gervain M. (1995) Recovery assessment scale. Chicago: Illinois Department of Mental Health. https://doi.org/10.1037/t12324-000

Grant, N., Lawrence, M., Preti, A., Wykes, T., & Cella, M. (2017). Social cognition interventions for people with schizophrenia: A systematic review focussing on methodological quality and intervention modality. *Clinical Psychology Review*, *56*, 55–64. https://doi.org/10.1016/j.cpr.2017.06.001

Greenwood, K. E., Sweeney, A., Williams, S., Garety, P., Kuipers, E., Scott, J., & Peters, E. (2010). CHoice of Outcome In Cbt for psychosEs (CHOICE): The Development of a New Service User–Led Outcome Measure of CBT for Psychosis. *Schizophrenia Bulletin*, *36*(1), 126–135. https://doi.org/10.1093/schbul/sbp117

Gumley, A., White, R., Briggs, A., Ford, I., Barry, S., Stewart, C., Beedie, S., McTaggart, J., Clarke, C., MacLeod, R., Lidstone, E., Riveros, B. S., Young, R., & McLeod, H. (2017). A parallel group randomised open blinded evaluation of Acceptance and Commitment Therapy for depression after psychosis: Pilot trial outcomes (ADAPT). *Schizophrenia Research*, *183*, 143–150. https://doi.org/10.1016/j.schres.2016.11.026

Haddock, G., McCarron, J., Tarrier, N., & Faragher, E. B. (1999). Scales to measure dimensions of hallucinations and delusions: The psychotic symptom rating scales (PSYRATS). *Psychological Medicine*, *29*(4), 879–889. https://doi.org/10.1017/S0033291799008661

Hagell, P., Reimer, J., & Nyberg, P. (2009). Whose Quality of Life? Ethical Implications in Patient-Reported Health Outcome Measurement. *Value in Health*, *12*(4), 613–617. https://doi.org/10.1111/j.1524-4733.2008.00488.x

Hall, R. C. W. (1995). Global Assessment of Functioning. *Psychosomatics*, *36*(3), 267–275. https://doi.org/10.1016/S0033-3182(95)71666-8

Hasan, A. A., & Alasmee, N. (2022). Evaluation of the impact of a self-stigma reduction programme on psychosocial outcomes among people with schizophrenia spectrum disorder. *Journal of Mental Health*, *31*(1), 83–91. https://doi.org/10.1080/09638237.2021.1922628

Hayward, M., Berry, K., Bremner, S., Jones, A.-M., Robertson, S., Cavanagh, K., Gage, H., Berry, C., Neumann, S., Hazell, C. M., Fowler, D., Greenwood, K., & Strauss, C. (2021). Increasing access to cognitive–behavioural therapy for patients with psychosis by evaluating the feasibility of a randomised controlled trial of brief, targeted cognitive–behavioural therapy for distressing voices delivered by assistant psychologists: The GiVE2 trial. *BJPsych Open*, *7*(5), e152. https://doi.org/10.1192/bjo.2021.983

Heinrichs, D. W., Hanlon, T. E., & Carpenter, W. T. (1984). The Quality of Life Scale: An Instrument for Rating the Schizophrenic Deficit Syndrome. *Schizophrenia Bulletin*, *10*(3), 388–398. https://doi.org/10.1093/schbul/10.3.388

Hodge, M. A. R., Siciliano, D., Withey, P., Moss, B., Moore, G., Judd, G., Shores, E. A., & Harris, A. (2010). A Randomized Controlled Trial of Cognitive Remediation in Schizophrenia. *Schizophrenia Bulletin*, *36*(2), 419–427. https://doi.org/10.1093/schbul/sbn102

Kabir, T., & Wykes, T. (2010). Measures of outcomes that are valued by service users. In G. Thornicroft & M. Tansella. (Eds.), *Mental Health Outcome Measures* (pp. 3–14). London: Royal College of Psychiatrists Publications.

Kammann, R., & Flett, R. (1983). Affectometer 2: A scale to measure current level of general happiness. *Australian Journal of Psychology*, *35*(2), 259–265. https://doi.org/10.1080/00049538308255070

Kinter, E. T., Schmeding, A., Rudolph, I., dosReis, S., & Bridges, J. F. P. (2009). Identifying patient-relevant endpoints among individuals with schizophrenia: An application of patient-centered health technology assessment. *International Journal of Technology Assessment in Health Care*, *25*(01), 35–41. https://doi.org/10.1017/S0266462309090059

Kiresuk, T. J., & Sherman, R. E. (1968). Goal attainment scaling: A general method for evaluating comprehensive community mental health programs. *Community Mental Health Journal*, *4*(6), 443–453. https://doi.org/10.1007/BF01530764

Klapheck, K., Nordmeyer, S., Cronjäger, H., Naber, D., & Bock, T. (2012). Subjective experience and meaning of psychoses: The German Subjective Sense in Psychosis Questionnaire (SUSE). *Psychological Medicine*, *42*(1), 61–71. https://doi.org/10.1017/S0033291711001103

Konsztowicz, S., Gelencser, C. R., Otis, C., Schmitz, N., & Lepage, M. (2021). Self-concept and Engagement in LiFe (SELF): A waitlist-controlled pilot study of a novel psychological intervention to target illness engulfment in enduring schizophrenia and related psychoses. *Schizophrenia Research*, *228*, 567–574. https://doi.org/10.1016/j.schres.2020.11.028

Korrelboom, K., IJdema, T., Karreman, A., & Van Der Gaag, M. (2022). The Effectiveness of Transdiagnostic Applications of Competitive Memory Training (COMET) on Low Self-Esteem and Comorbid Depression: A Meta-analysis of Randomized Controlled Trials. *Cognitive Therapy and Research*, *46*(3), 532–543. https://doi.org/10.1007/s10608-021-10286-6

Koushede, V., Lasgaard, M., Hinrichsen, C., Meilstrup, C., Nielsen, L., Rayce, S. B., Torres-Sahli, M., Gudmundsdottir, D. G., Stewart-Brown, S., & Santini, Z. I. (2019). Measuring mental well-being in Denmark: Validation of the original and short version of the Warwick-Edinburgh mental well-being scale (WEMWBS and SWEMWBS) and cross-cultural comparison across four European settings. *Psychiatry Research*, *271*, 502–509. https://doi.org/10.1016/j.psychres.2018.12.003

Kurtz, M. M., & Tolman, A. (2011). Neurocognition, insight into illness and subjective quality-of-life in schizophrenia: What is their relationship? *Schizophrenia Research*, *127*(1–3), 157–162. https://doi.org/10.1016/j.schres.2010.12.004

Law, H., Morrison, A., Byrne, R., & Hodson, E. (2012). Recovery from psychosis: A user informed review of self-report instruments for measuring recovery. *Journal of Mental Health*, *21*(2), 192–207. https://doi.org/10.3109/09638237.2012.670885

Law, H., Neil, S. T., Dunn, G., & Morrison, A. P. (2014). Psychometric properties of the Questionnaire about the Process of Recovery (QPR). *Schizophrenia Research*, *156*(2–3), 184–189. https://doi.org/10.1016/j.schres.2014.04.011

Laws, K. R., Darlington, N., Kondel, T. K., McKenna, P. J., & Jauhar, S. (2018). Cognitive Behavioural Therapy for schizophrenia - outcomes for functioning, distress and quality of life: A meta-analysis. *BMC Psychology*, *6*(1), 32. https://doi.org/10.1186/s40359-018-0243-2

Leamy, M., Bird, V., Boutillier, C. L., Williams, J., & Slade, M. (2011). Conceptual framework for personal recovery in mental health: Systematic review and narrative synthesis. *British Journal of Psychiatry*, *199*(6), 445–452. https://doi.org/10.1192/bjp.bp.110.083733

Lobban, F., Postlethwaite, A., Glentworth, D., Pinfold, V., Wainwright, L., Dunn, G., Clancy, A., & Haddock, G. (2013). A systematic review of randomised controlled trials of interventions reporting outcomes for relatives of people with psychosis. *Clinical Psychology Review*, *33*(3), 372–382. https://doi.org/10.1016/j.cpr.2012.12.004

Logan, B., Jegatheesan, D., Viecelli, A., Pascoe, E., & Hubbard, R. (2022). Goal attainment scaling as an outcome measure for randomised controlled trials: A scoping review. *BMJ Open*, *12*(7), e063061. https://doi.org/10.1136/bmjopen-2022-063061

Longden, E., Corstens, D., Bowe, S., Pyle, M., Emsley, R., Peters, S., Branitsky, A., Chauhan, N., Dehmahdi, N., Jones, W., Holden, N., Larkin, A., Miners, A., Murphy, E., Steele, A., & Morrison, A. P. (2022). A psychological intervention for engaging dialogically with auditory hallucinations (Talking With Voices): A single-site, randomised controlled feasibility trial. *Schizophrenia Research*, *250*, 172–179. https://doi.org/10.1016/j.schres.2022.11.007

Longden, E., Corstens, D., Morrison, A. P., Larkin, A., Murphy, E., Holden, N., Steele, A., Branitsky, A., & Bowe, S. (2021). A treatment protocol to guide the delivery of dialogical engagement with auditory hallucinations: Experience from the Talking With Voices pilot trial. *Psychology and Psychotherapy: Theory, Research and Practice*, *94*(3), 558–572. https://doi.org/10.1111/papt.12331

Lysaker, P. H., & Dimaggio, G. (2014). Metacognitive capacities for reflection in schizophrenia: implications for developing treatments. Schizophrenia bulletin, 40(3), 487-491. https://doi.org/10.1093/schbul/sbu038

Lysaker, P. H., Roe, D., & Yanos, P. T. (2006). Toward Understanding the Insight Paradox: Internalized Stigma Moderates the Association Between Insight and Social Functioning, Hope, and Self-esteem Among People with Schizophrenia Spectrum Disorders. *Schizophrenia Bulletin*, *33*(1), 192–199. https://doi.org/10.1093/schbul/sbl016

McGlanaghy, E., Turner, D., Davis, G. A., Sharpe, H., Dougall, N., Morris, P., Prentice, W., & Hutton, P. (2021). A network meta-analysis of psychological interventions for schizophrenia and psychosis: Impact on symptoms. *Schizophrenia Research*, *228*, 447–459. https://doi.org/10.1016/j.schres.2020.12.036

McCabe, R., Saidi, M., & Priebe, S. (2007). Patient-reported outcomes in schizophrenia. *British Journal of Psychiatry*, *191*(S50), s21–s28. https://doi.org/10.1192/bjp.191.50.s21

McDonagh, M. S., Dana, T., Kopelovich, S. L., Monroe-DeVita, M., Blazina, I., Bougatsos, C., Grusing, S., & Selph, S. S. (2022). Psychosocial Interventions for Adults With Schizophrenia: An Overview and Update of Systematic Reviews. *Psychiatric Services*, *73*(3), 299–312. https://doi.org/10.1176/appi.ps.202000649

Moher, D., Jadad, A. R., Nichol, G., Penman, M., Tugwell, P., & Walsh, S. (1995). Assessing the quality of randomized controlled trials: An annotated bibliography of scales and checklists. *Controlled Clinical Trials*, *16*(1), 62–73. https://doi.org/10.1016/0197-2456(94)00031-W

Moher, D., Schulz, K. F., & Altman, D. G. (2001). The CONSORT statement: Revised recommendations for improving the quality of reports of parallel-group randomised trials. *The Lancet*, *357*(9263), 1191–1194. https://doi.org/10.1016/S0140-6736(00)04337-3

Moritz, S., Mahlke, C. I., Westermann, S., Ruppelt, F., Lysaker, P. H., Bock, T., & Andreou, C. (2018). Embracing Psychosis: A Cognitive Insight Intervention Improves Personal Narratives and Meaning-Making in Patients With Schizophrenia. *Schizophrenia Bulletin*, *44*(2), 307–316. https://doi.org/10.1093/schbul/sbx072

Moritz, S., Veckenstedt, R., Andreou, C., Bohn, F., Hottenrott, B., Leighton, L., Köther, U., Woodward, T. S., Treszl, A., Menon, M., Schneider, B. C., Pfueller, U., & Roesch-Ely, D. (2014). Sustained and “Sleeper” Effects of Group Metacognitive Training for Schizophrenia: A Randomized Clinical Trial. *JAMA Psychiatry*, *71*(10), 1103. https://doi.org/10.1001/jamapsychiatry.2014.1038

Moritz, S., Veckenstedt, R., Bohn, F., Hottenrott, B., Scheu, F., Randjbar, S., Aghotor, J., Köther, U., Woodward, T. S., Treszl, A., Andreou, C., Pfueller, U., & Roesch-Ely, D. (2013). Complementary group Metacognitive Training (MCT) reduces delusional ideation in schizophrenia. *Schizophrenia Research*, *151*(1–3), 61–69. https://doi.org/10.1016/j.schres.2013.10.007

Naeem, F., Johal, R., McKenna, C., Rathod, S., Ayub, M., Lecomte, T., Husain, N., Kingdon, D., & Farooq, S. (2016). Cognitive Behavior Therapy for psychosis based Guided Self-help (CBTp-GSH) delivered by frontline mental health professionals: Results of a feasibility study. *Schizophrenia Research*, *173*(1–2), 69–74. https://doi.org/10.1016/j.schres.2016.03.003

Neil, S. T., Kilbride, M., Pitt, L., Nothard, S., Welford, M., Sellwood, W., & Morrison, A. P. (2009). The questionnaire about the process of recovery (QPR): A measurement tool developed in collaboration with service users. *Psychosis*, *1*(2), 145–155. https://doi.org/10.1080/17522430902913450

Orsi, J. A., Malinowski, F. R. L., Kagan, S., Weingarten, R., Villares, C. C., Bressan, R. A., De Oliveira, W. F., Andrade, M. C. R., & Gadelha, A. (2021). Evaluation of Ongoing Participation of People with Schizophrenia in a Mutual Support Group as a Complementary Intervention to Outpatient Psychiatric Treatment. *Psychiatric Quarterly*, *92*(3), 1283–1296. https://doi.org/10.1007/s11126-021-09893-z

Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan—A web and mobile app for systematic reviews. *Systematic Reviews*, *5*(1), 210. https://doi.org/10.1186/s13643-016-0384-4

Overall, J. E., & Gorham, D. R. (1962). The Brief Psychiatric Rating Scale. *Psychological Reports*, *10*(3), 799–812. https://doi.org/10.2466/pr0.1962.10.3.799

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Bmj*, *372*. https://doi.org/10.1136/bmj.n71

Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., Chisholm, D., Collins, P. Y., Cooper, J. L., Eaton, J., Herrman, H., Herzallah, M. M., Huang, Y., Jordans, M. J. D., Kleinman, A., Medina-Mora, M. E., Morgan, E., Niaz, U., Omigbodun, O., … UnÜtzer, Jü. (2018). The Lancet Commission on global mental health and sustainable development. *The Lancet*, *392*(10157), 1553–1598. https://doi.org/10.1016/S0140-6736(18)31612-X

Perkins, R. (2001). What constitutes success?: The relative priority of service users' and clinicians' views of mental health services. *British Journal of Psychiatry*, *179*(1), 9–10. https://doi.org/10.1192/bjp.179.1.9

Pijnenborg, G. H. M., De Vos, A. E., Timmerman, M. E., Van Der Gaag, M., Sportel, B. E., Arends, J., Koopmans, E. M., Van Der Meer, L., & Aleman, A. (2019). Social cognitive group treatment for impaired insight in psychosis: A multicenter randomized controlled trial. *Schizophrenia Research*, *206*, 362–369. https://doi.org/10.1016/j.schres.2018.10.018

Pitt, L., Kilbride, M., Nothard, S., Welford, M., & Morrison, A. P. (2007). Researching recovery from psychosis: A user-led project. *Psychiatric Bulletin*, *31*(2), 55–60. https://doi.org/10.1192/pb.bp.105.008532

Pos, K., Franke, N., Smit, F., Wijnen, B. F. M., Staring, A. B. P., Van Der Gaag, M., Meijer, C., De Haan, L., Velthorst, E., & Schirmbeck, F. (2019). Cognitive behavioral therapy for social activation in recent-onset psychosis: Randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *87*(2), 151–160. https://doi.org/10.1037/ccp0000362

Pot-Kolder, R. M. C. A., Geraets, C. N. W., Veling, W., Van Beilen, M., Staring, A. B. P., Gijsman, H. J., Delespaul, P. A. E. G., & Van Der Gaag, M. (2018). Virtual-reality-based cognitive behavioural therapy versus waiting list control for paranoid ideation and social avoidance in patients with psychotic disorders: A single-blind randomised controlled trial. *The Lancet Psychiatry*, *5*(3), 217–226. https://doi.org/10.1016/S2215-0366(18)30053-1

Rakitzi, S., Georgila, P., Efthimiou, K., & Mueller, D. R. (2016). Efficacy and feasibility of the Integrated Psychological Therapy for outpatients with schizophrenia in Greece: Final results of a RCT. *Psychiatry Research*, *242*, 137–143. https://doi.org/10.1016/j.psychres.2016.05.039

Roder, V., Mueller, D. R., & Schmidt, S. J. (2011). Effectiveness of Integrated Psychological Therapy (IPT) for Schizophrenia Patients: A Research Update. *Schizophrenia Bulletin*, *37*(suppl 2), S71–S79. https://doi.org/10.1093/schbul/sbr072

Roe, D., Slade, M., & Jones, N. (2022). The utility of patient-reported outcome measures in mental health. *World Psychiatry*, *21*(1), 56–57. https://doi.org/10.1002/wps.20924

Rogers, E. S., Chamberlin, J., Ellison, M. L., & Crean, T. (1997). A consumer-constructed scale to measure empowerment among users of mental health services. Psychiatric Services, 48, 1042–1047. https://doi.org/10.1176/ps.48.8.1042

Rogers, E. S., Ralph, R. O., & Salzer, M. S. (2010). Validating the Empowerment Scale With a Multisite Sample of Consumers of Mental Health Services. *Psychiatric Services*, *61*(9), 933–936. https://doi.org/10.1176/ps.2010.61.9.933

Rose, D., Evans, J., Sweeney, A., & Wykes, T. (2011). A model for developing outcome measures from the perspectives of mental health service users. *International Review of Psychiatry*, *23*(1), 41–46. https://doi.org/10.3109/09540261.2010.545990

Sachs, G., Winklbaur, B., Jagsch, R., Lasser, I., Kryspin-Exner, I., Frommann, N., & Wölwer, W. (2012). Training of affect recognition (TAR) in schizophrenia—Impact on functional outcome. *Schizophrenia Research*, *138*(2–3), 262–267. https://doi.org/10.1016/j.schres.2012.03.005

Salzer, M. S., & Brusilovskiy, E. (2014). Advancing Recovery Science: Reliability and Validity Properties of the Recovery Assessment Scale. *Psychiatric Services*, *65*(4), 442–453. https://doi.org/10.1176/appi.ps.201300089

Schmidt, S., Mühlan, H., & Power, M. (2006). The EUROHIS-QOL 8-item index: Psychometric results of a cross-cultural field study. *European Journal of Public Health*, *16*(4), 420–428. https://doi.org/10.1093/eurpub/cki155

Schrank, B., Riches, S., Coggins, T., Rashid, T., Tylee, A., & Slade, M. (2014). WELLFOCUS PPT – modified positive psychotherapy to improve well-being in psychosis: Study protocol for a pilot randomised controlled trial. *Trials*, *15*(1), 203. https://doi.org/10.1186/1745-6215-15-203

Sedgwick, O., Hardy, A., Newbery, K., & Cella, M. (2021). A systematic review of adherence to group interventions in psychosis: Do people attend? *Psychological Medicine*, *51*(5), 707–715. https://doi.org/10.1017/S0033291721000404

Sheaves, B., Holmes, E. A., Rek, S., Taylor, K. M., Nickless, A., Waite, F., Germain, A., Espie, C. A., Harrison, P. J., Foster, R., & Freeman, D. (2019). Cognitive Behavioural Therapy for Nightmares for Patients with Persecutory Delusions (Nites): An Assessor-Blind, Pilot Randomized Controlled Trial. *The Canadian Journal of Psychiatry*, 070674371984742. https://doi.org/10.1177/0706743719847422

Shih, C.-A., Huang, J.-H., & Yang, M.-H. (2022). Anti-stigma psychosocial intervention effects on reducing mental illness self-stigma and increasing self-esteem among patients with schizophrenia in Taiwan: A quasi-experiment. *Asian Journal of Psychiatry*, *73*, 103171. https://doi.org/10.1016/j.ajp.2022.103171

Skevington, S. M., Lotfy, M., & O’Connell, K. A. (2004). The World Health Organization’s WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A Report from the WHOQOL Group. *Quality of Life Research*, *13*(2), 299–310. https://doi.org/10.1023/B:QURE.0000018486.91360.00

Szmukler, G. (2009). Service users in research and a ‘well ordered science’. *Journal of Mental Health*, *18*(2), 87–90. https://doi.org/10.1080/09638230902835028

Staley, K., Kabir, T., & Szmukler, G. (2013). Service users as collaborators in mental health research: Less stick, more carrot. *Psychological Medicine*, *43*(6), 1121–1125. https://doi.org/10.1017/S0033291712001663

Staley, K., & Minogue, V. (2006). User involvement leads to more ethically sound research. *Clinical Ethics*, *1*(2), 95–100. https://doi.org/10.1258/147775006777254489

Staniszewska, S., Haywood, K. L., Brett, J., & Tutton, L. (2012). Patient and Public Involvement in Patient-Reported Outcome Measures: Evolution Not Revolution. *The Patient: Patient-Centered Outcomes Research*, *5*(2), 79–87. https://doi.org/10.2165/11597150-000000000-00000

Staring, A. B. P., Van Der Gaag, M., Van Den Berge, M., Duivenvoorden, H. J., & Mulder, C. L. (2009). Stigma moderates the associations of insight with depressed mood, low self-esteem, and low quality of life in patients with schizophrenia spectrum disorders. *Schizophrenia Research*, *115*(2–3), 363–369. https://doi.org/10.1016/j.schres.2009.06.015

Steel, C., Korrelboom, K., Fazil Baksh, M., Kingdon, D., Simon, J., Wykes, T., Phiri, P., & Van Der Gaag, M. (2020). Positive memory training for the treatment of depression in schizophrenia: A randomised controlled trial. *Behaviour Research and Therapy*, *135*, 103734. https://doi.org/10.1016/j.brat.2020.103734

Stewart-Brown, S. (2013). The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): Performance in Different Cultural and Geographical Groups. In C. L. M. Keyes (Ed.), *Mental Well-Being* (pp. 133–150). Springer Netherlands. https://doi.org/10.1007/978-94-007-5195-8_7

Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J., & Weich, S. (2009). Internal construct validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): A Rasch analysis using data from the Scottish Health Education Population Survey. *Health and Quality of Life Outcomes*, *7*(1), 15. https://doi.org/10.1186/1477-7525-7-15

Tan, B.L., & King, R. (2013). The effects of cognitive remediation on functional outcomes among people with schizophrenia: A randomised controlled study. *Australian & New Zealand Journal of Psychiatry*, *47*(11), 1068–1080. https://doi.org/10.1177/0004867413493521

Tarrier, N., & Wykes, T. (2004). Is there evidence that cognitive behaviour therapy is an effective treatment for schizophrenia? A cautious or cautionary tale? *Behaviour Research and Therapy*, *42*(12), 1377–1401. https://doi.org/10.1016/j.brat.2004.06.020

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, *5*(1), 63. https://doi.org/10.1186/1477-7525-5-63

The WHOQOL Group. (1994). Development of the WHOQOL: Rationale and Current Status. *International Journal of Mental Health*, *23*(3), 24–56. https://doi.org/10.1080/00207411.1994.11449286

The WHOQOL Group. (1998a). Development of the World Health Organization WHOQOL-BREF Quality of Life Assessment. *Psychological Medicine*, *28*(3), 551–558. https://doi.org/10.1017/S0033291798006667

The WHOQOL Group. (1998b). The World Health Organization quality of life assessment (WHOQOL): Development and general psychometric properties. *Social Science & Medicine*, *46*(12), 1569–1585. https://doi.org/10.1016/S0277-9536(98)00009-4

Thornicroft, G., & Slade, M. (2014). New trends in assessing the outcomes of mental health interventions. *World Psychiatry*, *13*(2), 118–124. https://doi.org/10.1002/wps.20114

Trujols, J., Portella, M. J., Iraurgi, I., Campins, M. J., Siñol, N., & Cobos, J. P. D. L. (2013). Patient-reported outcome measures: Are they patient-generated, patient-centred or patient-valued? *Journal of Mental Health*, *22*(6), 555–562. https://doi.org/10.3109/09638237.2012.734653

Turner-Stokes, L. (2009). Goal attainment scaling (GAS) in rehabilitation: A practical guide. *Clinical Rehabilitation*, *23*(4), 362–370. https://doi.org/10.1177/0269215508101742

Üstün, T. B., Chatterji, S., Kostanjsek, N., Rehm, J., Kennedy, C., Epping-Jordan, J., Saxena, S., Von Korff, M., & Pull, C. (2010). Developing the World Health Organization Disability Assessment Schedule 2.0. *Bulletin of the World Health Organization*, *88*(11), 815–823. https://doi.org/10.2471/BLT.09.067231

Vaingankar, J. A., Abdin, E., Chong, S. A., Sambasivam, R., Seow, E., Jeyagurunathan, A., Picco, L., Stewart-Brown, S., & Subramaniam, M. (2017). Psychometric properties of the short Warwick Edinburgh mental well-being scale (SWEMWBS) in service users with schizophrenia, depression and anxiety spectrum disorders. *Health and Quality of Life Outcomes*, *15*(1), 153. https://doi.org/10.1186/s12955-017-0728-3

Valiente, C., Espinosa, R., Trucharte, A., Nieto, J., & Martínez-Prado, L. (2019). The challenge of well-being and quality of life: A meta-analysis of psychological interventions in schizophrenia. *Schizophrenia Research*, *208*, 16–24. https://doi.org/10.1016/j.schres.2019.01.040

Vogel, J. S., Bruins, J., Swart, M., Liemburg, E., Van Der Gaag, M., & Castelein, S. (2023). Effects of an eating club for people with a psychotic disorder on personal recovery: Results of a randomized controlled trial. *Journal of Behavior Therapy and Experimental Psychiatry*, *81*, 101871. https://doi.org/10.1016/j.jbtep.2023.101871

Wakefield, S., Roebuck, S., & Boyden, P. (2018). The evidence base of Acceptance and Commitment Therapy (ACT) in psychosis: A systematic review. *Journal of Contextual Behavioral Science*, *10*, 1–13. https://doi.org/10.1016/j.jcbs.2018.07.001

Webb, R., Bartl, G., James, B., Skan, R., Peters, E., Jones, A.-M., Garety, P., Kuipers, E., Hayward, M., & Greenwood, K. (2021). Exploring the Development, Validity, and Utility of the Short-Form Version of the CHoice of Outcome In Cbt for PsychosEs: A Patient-Reported Outcome Measure of Psychological Recovery. *Schizophrenia Bulletin*, *47*(3), 653–661. https://doi.org/10.1093/schbul/sbaa173

Westermann, S., Rüegg, N., Lüdtke, T., Moritz, S., & Berger, T. (2020). Internet-based self-help for psychosis: Findings from a randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *88*(10), 937–950. https://doi.org/10.1037/ccp0000602

Wiering, B., De Boer, D., & Delnoij, D. (2017). Patient involvement in the development of patient-reported outcome measures: A scoping review. *Health Expectations*, *20*(1), 11–23. https://doi.org/10.1111/hex.12442

Wiersma, D., Jenner, J. A., Nienhuis, F. J., & Van, De Willige, G. (2004). Hallucination focused integrative treatment improves quality of life in schizophrenia patients. *Acta Psychiatrica Scandinavica*, *109*(3), 194–201. https://doi.org/10.1046/j.0001-690X.2003.00237.x

Wilkinson, G., Hesdon, B., Wild, D., Cookson, R., Farina, C., Sharma, V., Fitzpatrick, R., & Jenkinson, C. (2000). Self-report quality of life measure for people with schizophrenia: The SQLS. *British Journal of Psychiatry*, *177*(1), 42–46. https://doi.org/10.1192/bjp.177.1.42

Wowra, S. A., & McCarter, R. (1999). Validation of the Empowerment Scale With an Outpatient Mental Health Population. *Psychiatric Services*, *50*(7), 959–961. https://doi.org/10.1176/ps.50.7.959

Wykes, T., Huddy, V., Cellard, C., McGurk, S. R., & Czobor, P. (2011). A Meta-Analysis of Cognitive Remediation for Schizophrenia: Methodology and Effect Sizes. *American Journal of Psychiatry*, *168*(5), 472–485. https://doi.org/10.1176/appi.ajp.2010.10060855

Wykes, T., Stringer, D., Boadu, J., Tinch-Taylor, R., Csipke, E., Cella, M., Pickles, A., McCrone, P., Reeder, C., Birchwood, M., Fowler, D., Greenwood, K., Johnson, S., Perez, J., Ritunnano, R., Thompson, A., Upthegrove, R., Wilson, J., Kenny, A., … Joyce, E. M. (2023). Cognitive Remediation Works But How Should We Provide It? An Adaptive Randomized Controlled Trial of Delivery Methods Using a Patient Nominated Recovery Outcome in First-Episode Participants. *Schizophrenia Bulletin*, *49*(3), 614–625. https://doi.org/10.1093/schbul/sbac214

Yanos, P. T., Lysaker, P. H., Silverstein, S. M., Vayshenker, B., Gonzales, L., West, M. L., & Roe, D. (2019). A randomized-controlled trial of treatment for self-stigma among persons diagnosed with schizophrenia-spectrum disorders. *Social Psychiatry and Psychiatric Epidemiology*, *54*(11), 1363–1378. https://doi.org/10.1007/s00127-019-01702-0\

Zimmer, M., Duncan, A. V., Laitano, D., Ferreira, E. E., & Belmonte-de-Abreu, P. (2007). A twelve-week randomized controlled study of the cognitive-behavioral Integrated Psychological Therapy program: Positive effect on the social functioning of schizophrenic patients. *Revista Brasileira de Psiquiatria*, *29*(2), 140–147. https://doi.org/10.1590/S1516-44462006005000030

Appendix A. Search terms and search strategy

EMBASE (OVID)

Type: psychotic spectrum disorders

1 exp psychosis/ or exp schizophrenia/

2 (psychosis or psychoses or psychotic or schizophren* or delusional disorder* or delusion* or hallucinat*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]

3 1 or 2

Type: Psychosocial intervention

4 exp psychosocial intervention/

5 (((((psychol* intervention or psychol* therapy or counselling or cbt or cognitive behaviour* or cognitive behavior* or mindful* or act or acceptance) and commitment) or acceptance & commitment or cft or group therapy or family intervention or family therapy or systemic family therapy or compassion focused or compassion focussed or compassion-focused or compassion-focussed or cognitive analytic or cat or talking therapy or cognitive therapy or behaviour* therapy or behavior* therapy or motivational interview* or humanistic therapy or psychodynamic therapy or interpersonal therapy or ipt or problem-solving therapy or problem solving therapy or digital intervention or digital therapy or avatar or trauma focused or trauma focussed or trauma-focused or trauma-focussed or emdr or eye movement desensiti* or eye-movement desensiti* or self help or self-help or psychoeducation* or psycho education* or cognitive remed* or crt or psychosocial intervention or psychosocial therapy or social skills training or social cognitive training or social-cognitive training or peer support or vocational or employment or ips or individual placement) and support) or individual placement support).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]

6 4 or 5

Type: controlled intervention study

7 exp clinical trial/ or exp controlled study/ or exp randomized controlled trial/

8 (rct or randomised controlled trial* or randomized controlled trial* or controlled trial or controlled intervention).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]

9 7 or 8

10 3 and 6 and 9

MEDLINE (OVID)

1 exp Psychotic Disorders

2 (psychosis or psychoses or psychotic or schizophren* or delusional disorder* or delusion* or hallucinat*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]

3 1 or 2

4 exp Psychosocial Intervention/

5 (((((psychol* intervention or psychol* therapy or counselling or cbt or cognitive behaviour* or cognitive behavior* or mindful* or act or acceptance) and commitment) or acceptance & commitment or cft or group therapy or family intervention or family therapy or systemic family therapy or compassion focused or compassion focussed or compassion-focused or compassion-focussed or cognitive analytic or cat or talking therapy or cognitive therapy or behaviour* therapy or behavior* therapy or motivational interview* or humanistic therapy or psychodynamic therapy or interpersonal therapy or ipt or problem-solving therapy or problem solving therapy or digital intervention or digital therapy or avatar or trauma focused or trauma focussed or trauma-focused or trauma-focussed or emdr or eye movement desensiti* or eye-movement desensiti* or self help or self-help or psychoeducation* or psycho education* or cognitive remed* or crt or psychosocial intervention or psychosocial therapy or social skills training or social cognitive training or social-cognitive training or peer support or vocational or employment or ips or individual placement) and support) or individual placement support).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]

6 4 or 5

7 (rct or randomised controlled trial* or randomized controlled trial* or controlled trial or controlled intervention).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]

8 3 and 6 and 7

PsycINFO (OVID)

1 exp Psychosis/

2 (psychosis or psychoses or psychotic or schizophren* or delusional disorder* or delusion* or hallucinat*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]

3 1 or 2

4 exp Psychotherapy/ or exp Cognitive Behavior Therapy/

5 (((((psychol* intervention or psychol* therapy or counselling or cbt or cognitive behaviour* or cognitive behavior* or mindful* or act or acceptance) and commitment) or acceptance & commitment or cft or group therapy or family intervention or family therapy or systemic family therapy or compassion focused or compassion focussed or compassion-focused or compassion-focussed or cognitive analytic or cat or talking therapy or cognitive therapy or behaviour* therapy or behavior* therapy or motivational interview* or humanistic therapy or psychodynamic therapy or interpersonal therapy or ipt or problem-solving therapy or problem solving therapy or digital intervention or digital therapy or avatar or trauma focused or trauma focussed or trauma-focused or trauma-focussed or emdr or eye movement desensiti* or eye-movement desensiti* or self help or self-help or psychoeducation* or psycho education* or cognitive remed* or crt or psychosocial intervention or psychosocial therapy or social skills training or social cognitive training or social-cognitive training or peer support or vocational or employment or ips or individual placement) and support) or individual placement support).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]

6 4 or 5

7 exp Clinical Trials/

8 (rct or randomised controlled trial* or randomized controlled trial* or controlled trial or controlled intervention).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]

9 7 or 8

10 3 and 6 and 9

Appendix B. CTAM ratings

Supplementary Table 1. CTAM ratings for individual studies

	Sample	Allocation	Assessment	Control groups	Analysis	Active Treatment	Total score
Maximum score	**10**	**16**	**32**	**16**	**15**	**11**	**100**
United Kingdom (Hayward et al., 2021)	2	16	32	16	15	11	92
United Kingdom (Wykes et al., 2023)	7	16	26	6	15	11	91
United Kingdom (Freeman, Emsley et al., 2021)	7	16	29	10	15	11	88
United Kingdom (Steel et al., 2020)	7	16	32	6	15	11	87
United Kingdom (Chadwick et al., 2016)	7	16	32	6	15	11	87
United Kingdom (Freeman, Dunn et al., 2015)	7	16	32	6	15	11	87
The Netherlands (Pot-Kolder et al., 2018)	7	16	29	6	15	11	84
United Kingdom (Garety et al., 2021)	7	16	29	6	15	11	84
Switzerland & Germany (Westermann et al., 2020)	5	16	29	6	15	11	82
United Kingdom (Gumley et al., 2017)	2	16	32	6	15	11	82
United Kingdom (Longden et al., 2022)	2	16	32	6	15	11	82
United Kingdom (Freeman, Wait et al., 2015)	2	16	32	6	15	11	82
United States of America (Yanos et al., 2019)	7	16	26	10	11	11	81
The Netherlands (Pos et al., 2019)	7	16	26	6	15	11	81

The Netherlands (de Jong et al., 2019)	7	16	26	6	15	11	81
Saudi Arabia (Hassan et al., 2022)	7	16	29	6	15	6	79
The Netherlands (Castelein et al., 2008)	7	16	26	6	15	8	78
Germany (Boge et al., 2021)	2	16	32	6	15	6	77
United Kingdom (Sheaves et al., 2019)	2	16	32	6	15	6	77
United Kingdom (Cella et al., 2022)	2	16	26	6	15	11	76
Australia (Bryce et al., 2018)	7	16	26	10	9	6	74
Singapore (Tan & King, 2013)	7	16	26	10	9	6	74
United Kingdom (Freeman, Pugh et al., 2014)	2	16	32	6	15	3	74
The Netherlands (Pijnenborg et al., 2019)	7	10	26	10	15	6	74
United Kingdom (Schrank et al., 2016)	7	16	16	6	15	11	71
Greece (Rakitzi et al., 2016)	7	16	26	6	9	6	70
Germany (Moritz et al., 2018)	7	3	29	10	15	6	70
Canada (Naeem et al., 2016)	2	16	26	6	15	3	68
China (Fung, Tsang & Cheung, 2011)	7	13	26	10	9	3	68
China (Chu et al., 2022)	7	13	16	6	15	11	68
Germany (Moritz et al., 2014)	7	0	29	10	15	6	67
France (d’Amato et al., 2011)	7	10	26	6	10	6	65

China (Chen et al., 2021)	7	10	29	6	5	6	63
The Netherlands (Wiersma et al., 2004)	7	16	6	6	15	11	61
Brazil (Zimmer et al., 2007)	2	13	26	6	5	6	58
Australia (Contreras et al., 2018)	2	10	26	10	5	3	56
Taiwan (Shih et al., 2022)	7	3	16	6	15	6	53
Australia (Hodge et al., 2010)	7	13	6	6	9	8	49
Austria (Sachs et al., 2012)	2	10	6	6	9	3	36
The Netherlands (Vogel et al., 2013)	2	6	6	6	5	8	33
Canada (Konsztowicz et al., 2021)	2	3	6	6	9	6	32
Brazil (Orsi et al., 2021)	2	0	6	6	4	0	18

Chapter II

Main Empirical Project

Service user recovery goals in first episode psychosis: The role of negative symptoms

Tabitha Craston
Supervised by Dr Matteo Cella and Professor Til Wykes

ABSTRACT

Background: Recovery following first episode psychosis (FEP) is a process unique to the individual and complex to capture with a measure. Service user priorities can be understood by recording personally chosen recovery goals. When this is done it is important to understand the range and types of recovery goals. Motivation and negative symptoms are considered a key contributing factor to impaired functioning in people with psychosis and could affect the chosen recovery goals. This study aims to explore recovery goals in individuals with FEP and evaluate if negative symptoms affect the types, importance and relevance of the recovery goals chosen.

Methods: This study used baseline data from a Randomised Controlled Trial of Cognitive Remediation Therapy, that uniquely collected information on recovery goals in early intervention (EI) service users. Goal categories were formed using the input of people with lived experience of FEP. ANOVA was used to determine whether motivation and pleasure difficulties were associated with the type of recovery goals chosen. Linear regression analyses were used to determine whether more motivation and pleasure difficulties were associated with lower ratings of goal importance and higher ratings of goal difficulty, with self-esteem included as a covariate.

Results: Of the 938 recovery goals, 98% could be reliably categorised into the following categories: Day-to-day life skills (26.9%), Leisure & Hobbies (21.0%), Health & Wellbeing (17.8%) Relationships (13.3%), Employment (11.5%), and Education (7.6%). More severe motivation and pleasure difficulties were not associated with different goal categories, and more severe motivation and pleasure difficulties did not predict ratings of goal difficulty or goal importance. Lower self-esteem was associated with higher ratings of goal difficulty.

Conclusions: Service users have a range of priorities in their recovery, and services should ensure they offer a range of interventions that reflect these priorities. Motivation and pleasure difficulties do not appear to impact perceptions of goal importance or difficulty at the goal setting stage and may be more relevant to motivation when initiating goal-directed activity. Future research should consider the role of self-esteem and perceptions of goal difficulty in recovery goal attainment.

Table of contents

<u>**List of Tables**</u>

1. Introduction

1.1 Remission and recovery

The treatment goal following first episode psychosis (FEP) has historically been remission, which refers to the reduction of symptoms to a particular level for at least six months (Andreasen et al., 2005). However, symptomatic remission is only one element of what is important to service users after FEP (Windell, Norman & Malla, 2012). Remission is seen as one of several outcomes to work towards, and the broader treatment goal tends to be recovery (Phahladira et al., 2020). Recovery is a multi-faceted concept that encompasses many aspects of a person's life (Silverstein & Bellack, 2008). Developing our understanding of recovery after FEP is important, as there is evidence from systematic reviews that rates of recovery are lower than rates of remission (Lally et al., 2017; Catalan et al., 2021). For example, a systematic review found that 58% of patients with FEP met criteria for remission over a mean follow-up period of 5.5 years, while only 38% met criteria for recovery over a mean follow-up period of 7.2 years (Lally et al., 2017).

1.2 Defining recovery

Service users perceive recovery as a process that is ongoing, multi-faceted, and idiosyncratic at every illness stage, with individuals prioritising different goals and outcomes at different stages (Jose, Lalitha, Gandhi & Desai, 2015; Temesgen, Chien & Bressington, 2019; Wood & Alsawy, 2018). As a result, there are longstanding challenges with defining recovery for research purposes. One solution is to differentiate distinct but related types of recovery. For example, 'clinical recovery' refers to symptom reduction, while 'functional recovery' broadly refers to social and occupational functioning. Functional recovery might encompass engaging in social interactions, acting in line with expected social roles for one's age, and engaging in activities that enable self-maintenance, such as performing daily activities without supervision, living independently, or earning an income (Harvey & Bellack, 2009; Robinson, Woerner, McMeniman, Mendelowitz & Bilder, 2004; Roosenschoon, Kamperman, Deen, Weeghel & Mulder, 2019). Some authors consider functional recovery to be an element of clinical recovery, as both concern the end point of treatment, or engagement with services (Ponce-Correa, Caqueo-Urízar, Berrios, & Escobar-Soler, 2023).

A third perspective, usually termed ‘personal recovery,’ emerged from the consumer-survivor movements in the USA (Anthony, 1993). Personal recovery broadly refers to changing one’s attitude to life and illness and engaging in actions related to empowerment, hope for the future, and the search for a meaningful life (Anthony, 1993; Frese & Davis, 1997; Slade, Amering & Oades, 2008; Silverstein & Bellack, 2008). Recovery is seen as subjective and can occur with or without the alleviation of all symptoms. Different types of recovery are distinct but related. For example, a longitudinal study found that clinical recovery (defined as symptom and functional remission) and personal recovery predicted each other over time Dubreucq et al., 2022).

1.3 Measurement of recovery

There are a range of measures of personal recovery (Cavelti, Kvrgic, Beck, Kossowsky& Vauth, 2012), although some authors have argued that it may be best captured using qualitative research methods due to its subjectivity (Lemos-Giráldez et al., 2015). The lack of a standardised definition of functional recovery has been highlighted as a barrier to developing validated measures (Ponce-Correa et al., 2023). Measures of functional recovery are available, although these are primarily clinician-rated (Mausbach, Moore, Bowie, Cardenas & Patterson, 2009). Over the last few decades, patient-reported outcome measures have been developed using qualitative and participatory research techniques (Corrigan, Salzer, Ralph, Sangster & Keck, 2004; Greenwood et al., 2010; Neil et al., 2009), as clinician and researcher perspectives on what is important to measure in recovery may differ from those of service users. The question remains as to what elements of recovery to measure. The idea of being ‘functional’ is strongly influenced by societal expectations and implies the presence of objective standards of functioning in the general population, which do not exist (Harvey and Bellack, 2009). Perceptions will inevitably be influenced by the cultural context of the individual and their family, for example expectations around the age a person should be living independently, or the nature of their employment (Phahladira et al., 2020). Additionally, service user perspectives may differ: one person may be satisfied with a life in which social engagement and vocational activities are absent, while another might not be. Given that recovery is subjective to the individual and their culture, understanding what is important to specific populations may be a helpful starting point.

1.4 Recovery goals

As outlined above, there are challenges to capturing what is important to people in recovery in a systematic way, that additionally accounts for recovery as multi-faceted, idiosyncratic to the individual, and informed by cultural context. One way to gauge what is important to people is to capture their recovery goals. Recovery goals are individualised and self-defined, rather than pre-defined, measurable outcomes that may not reflect the priorities of service users (Jaiswal et al., 2020). Multiple perspectives on recovery can be captured: a goal (e.g., applying for university) may represent both functional and personal recovery depending on the individual's priorities, and these can be captured at a population level despite individuals being at different stages of recovery (for example, searching for university courses online, versus applying for university).

1.5 The Goal Attainment Scale (GAS)

Goal Attainment Scaling was developed as a method of evaluating community mental health programmes using a standardised method, by measuring diverse and individualised service user goals and evaluating their achievement with an objective and quantifiable method (Kiresuk & Sherman, 1968). Goal Attainment Scaling is concerned with the symptoms or behaviours that an intervention aims to change and has been used across multiple healthcare settings including rehabilitation, neurology, and psychiatry (Logan, Jegatheesan, Viecelli, Pascoe & Hubbard, 2022). One commonly used measure is the Goal Attainment Scale (GAS), which asks the individual to identify up to three SMART goals (specific, measurable, achievable, realistic, and time-limited) and rate each goal according to their perception of its importance and difficulty. When the GAS is used as an outcome measure, attainment of these goals can be calculated using a formula that generates a standardised T-Score (combining all identified goals), assigning weights to goals based on ratings of importance and difficulty, and a numerical rating given by the participant to indicate the extent to which they achieved their goal on a five-point scale from -2 to +2 (-2, worse than expected; -1, same as baseline; 0, partially achieved; +1, fully achieved; +2, better than expected). The GAS has been identified as a helpful measurement tool in research that can account for heterogeneity in participants or outcomes (Urach et al., 2019), and is therefore a potentially useful method for capturing what is important to service users in recovery.

1.6 Recovery goals in early intervention services

Early intervention in psychosis (EIP) services are a key part of an established model for improving outcomes for people following FEP, showing benefits for reducing treatment discontinuation and hospitalisation (Correll et al., 2018). Developing a more nuanced understanding of EIP service users' recovery goals may benefit service planning by increasing the provision of psychosocial interventions that reflect service users' goals. Qualitative research has explored perspectives on recovery in psychosis populations (Temesgen et al., 2019; Windell et al., 2012; Wood & Alsawy, 2018), but fewer studies have explored this using a quantitative approach.

One study in the United States elicited life and treatment goals from 100 service users hospitalised for FEP, using open-ended questions, and found the frequently stated goals were related to employment, education, relationships, housing, and health, in addition to clinical recovery goals such as reducing symptoms (Ramsay et al., 2011). Another study captured 120 recovery goals from 75 service users entering a First-Episode Clinic in Chennai, India (Iyer, Mangala, Anitha, Thara & Malla, 2011). Participants completed the goal attainment section of a multi-dimensional quality of life questionnaire, and goals were thematically grouped into eight categories. Most service users (38.2%) identified a primary goal related to work, followed by close family/interpersonal relationships (20.6%). The other categories in order of frequency were education, symptom relief and psychological recovery, living situation, religious goals, finances, and household responsibilities. The study also investigated whether the frequency of primary goals about work and close family were related to age and gender. Younger service users were more likely to identify employment-related goals, and female service users and those over the age of 27 were more likely to endorse close family-related goals (Iyer et al., 2011).

It is unclear what types of recovery goals EIP service users in the United Kingdom (UK) prioritise, or whether recovery goals are related to any demographic or clinical characteristics. Previous research suggests that age and gender may be relevant (Iyer et al., 2011). Ethnicity may also influence the types of recovery goals chosen, as explanatory models for mental health issues can be informed by the culture of the individual making sense of their experiences (Kleinman, 1980), and research suggests that service users from minority ethnic groups in the UK may have different perspectives on some aspects of recovery, for example the relative importance of religion and spirituality (Islam, Rabiee & Singh, 2015; Singh et al., 2015). Understanding this in more detail may enable the provision of interventions that are consistent with the goals of EIP service users in terms of interests and values, perhaps reducing the significant disengagement rate from services, which has been estimated as approximately 30% (Doyle et al., 2014).

1.7 Negative symptoms and recovery goals

Negative symptoms in psychosis are widely defined as a reduction of normal functioning, with the literature differentiating them into two broad domains: experiential (e.g. avolition, anhedonia, asociality) and expressive (e.g. blunted affect and alogia) (Kring, Gur, Blanchard, Horan & Reise, 2013; Galderisi, Mucci, Buchanan, & Arango, 2018). Research exploring predictors of functional recovery in FEP has identified lower positive and negative symptoms as key predictors in both the short and long-term (Austin et al., 2013; Gee et al., 2016; Santesteban-Echarri et al., 2017). People with high negative symptoms have difficulty initiating and engaging in goal-directed activity (Strauss & Cohen, 2017), and evidence suggests this may reflect reduced anticipatory pleasure. Anticipatory pleasure and consummatory pleasure can be differentiated by the experience of 'wanting' versus 'liking,' (Berridge & Robinson, 2003). Anticipatory pleasure therefore refers to the ability to anticipate future pleasure when translating goal intentions into goal-directed activity (Pillny, Schlier & Lincoln, 2020). Reduced anticipatory pleasure among people with negative symptoms can be understood as part of the multi-faceted construct of motivation (Marder & Galderisi, 2017). Reduced motivation is considered a key contributing factor to impaired functioning for people with negative symptoms, due to its role in limiting engagement with meaningful roles and relationships (Fulford, Meyer-Kalos & Mueser, 2020; Galderisi et al., 2018). Further understanding of the motivational processes that influence goal-directed activity at the stage of goal setting may lead to the development of more effective interventions that enable people with high negative symptoms to achieve their recovery goals (Pillny et al., 2020).

Thonon and colleagues (2020) outline a three-level model of motivation, which suggests that motivation depends on cognitive processes such as an estimation of required effort and value, which can be influenced by dysfunctional attitudes such as low self-efficacy. If people with more severe difficulties with motivation and pleasure struggle with translating goal intentions into goal-directed activity, this may be reflected in their perception of goal difficulty, as motivation depends on estimation of required effort (Thonon, Van Aubel, Lafit, Della Libera, & Larøi, 2020). Additionally, if people with more severe difficulties with motivation and pleasure struggle with translating goal intentions into goal-directed activity (Pillny et al., 2020), this may be reflected in their perception of goal importance, as motivation depends on estimation of value (Thonon et al., 2020). Examination of the relationship between negative symptom severity and perceptions of goal difficulty and importance should also consider the role of self-efficacy, which is thought to influence the cognitive processes underlying motivation (estimation of required effort and value). Self-esteem can be considered a proxy for self-efficacy, as they are strongly correlated and are thought to be related to a higher order construct (Judge & Bono, 2001; Judge, Erez, Bono & Thoresen, 2002).

Negative symptoms may also affect the types of recovery goals chosen, with those with more severe negative symptoms more likely to identify goals related to managing the fundamental demands of everyday life (e.g., food shopping, taking public transport) than goals related to social or vocational activities. Such goals can be considered necessary for meeting basic needs, and may require less motivation than, for example, applying for a degree, or going to meet friends. In addition, goals around engaging in everyday activities may be more akin to habits, which require less conscious motivation and are elicited automatically in particular settings (Gardner & Lally, 2018).

1.8 The current research

This research uses data from the CIRCuiTS study, a Randomised Controlled Trial aiming to determine the best method of introducing Cognitive Remediation Therapy (CRT) in National Health Service (NHS) EIP services in the UK (Wykes et al., 2018; 2023). This study used the GAS as its primary outcome and uniquely collected information on goals and personal recovery aspirations in EIP service users from the UK.

The first aim is to develop a process, informed by lived experience expertise, to categorise recovery goals into pre-defined categories. This will enable the determination of whether goals in particular categories were perceived as more important or more difficult to achieve.

The hypothesis is that negative symptom severity in the motivation and pleasure domain will predict goal category, specifically that goals related to Day-to-day life skills will be associated with higher levels of difficulty with negative symptoms in the motivation and pleasure domain compared to other goal categories. We also hypothesised that negative symptom severity in the motivation and pleasure domain will predict lower ratings of goal importance and higher ratings of goal difficulty.

2. Methods

2.1 Design

This is a cross-sectional study using baseline assessment data from the CIRCuiTS study (Wykes et al., 2018; 2023).

2.2 Participants

Study participants were those recruited for CIRCuiTS study and met the following inclusion criteria: attending an EIP service for at least 3 months, currently sufficiently clinically stable (as judged by the clinical team), aged between 16 and 45, research diagnosis of non-affective psychosis, and ability to give informed consent. Participants were recruited from EIP services across the Midlands and Southeast of the UK, including in London, Birmingham, Warwickshire, Sussex, Cambridgeshire, Norfolk, and Suffolk. Participants considered in the current study were those who had available demographic data and had identified at least one goal on the GAS at baseline (N=375).

2.3 Measures

Recovery goals were measured using the Goal Attainment Scale (GAS), a measure used for goal attainment scaling (Kiresuk & Sherman, 1968). The GAS provides a method of standardising and measuring the achievement of goals and has been used previously in mental health intervention studies (Hurn, Kneebone & Cropley, 2006; Cella et al., 2022; Lee et al., 2022). In the current study, only GAS baseline data from the CIRCuiTS study was used. This included up to three written SMART goals identified at baseline for each participant. For each goal, importance was rated on a three-point scale, with 1 corresponding to ‘a little important,’ 2 to ‘moderately important, and 3 to ‘very important.’ The difficulty of each goal was also rated on a three-point scale, with 1 corresponding to ‘a little difficult,’ 2 corresponding to ‘moderately difficult,’ and 3 corresponding to ‘very difficult.’ Researchers in the trial were trained not to consider goals with ratings of 0 (‘not important,’ or ‘not difficult’), as these were not felt to be valuable or meaningful outcomes.

Negative symptoms in the motivation and pleasure domain were measured using the Clinical Assessment Interview for Negative Symptoms (CAINS) (Forbes et al., 2010). This is a semi-structured interview including observations. The CAINS is a validated measure which has been widely used (Galderisi et al., 2018; Horan, Kring, Gur, Reise & Blanchard, 2011). It includes 13 Items each rated on a 5-point scale, from absent (0) to severe (4). The CAINS items are grouped under two factors: motivation and pleasure (MAP, motivation for social and non-social behaviour, and activity enjoyment), and expression (EXP, language use and emotion display). Evidence suggests that these factors may have a differential impact on functional outcomes (Faerden et al., 2009; Green, Hellemann, Horan, Lee & Wynn, 2012), therefore differentiating the two factors is recommended to ensure information relevant to pathophysiological mechanisms is not lost (Marder & Galderisi, 2017). Only the motivation and pleasure scale was used in the analyses. Scores on the motivation and pleasure scale range from 0 to 36, with higher scores indicating more severe difficulties.

2.3.1 Demographic covariates

Data on age and gender were extracted for consideration as potential demographic covariates based on previous research indicating that age and gender influence the types of recovery goals chosen (Iyer et al., 2011). Data on ethnicity was also extracted and considered as a covariate, as perspectives on recovery may be influenced by the cultural context of the individual (Islam et al., 2015; Singh et. al., 2015).

2.3.2 Clinical covariates

Self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The Rosenberg Self-Esteem Scale (RSE) is 10-item unidimensional self-report scale that measures global self-worth. It has been validated in multiple populations globally (Monteiro et al., 2022). Respondents rate their level of agreement with a series of statements on a 4-point

Likert scale ranging from ‘strongly agree’ to ‘strongly disagree.’ Scores range from 0 to 30, with a higher score indicating higher self-esteem.

2.3.3 Contextual data

Demographic data on living situation, employment status, and relationship status was extracted to characterise the sample.

Negative symptoms in the expression domain were extracted as a factor on the CAINS (Forbes et al., 2010). The expression scale ranges from 0 to 16, with higher scores indicating more severe difficulties in the expression domain of negative symptoms.

Positive symptoms were extracted as a factor on the Positive and Negative Syndrome Scale (PANSS), a widely used measure of symptom severity for people with schizophrenia (Kay, Fiszbein & Opler, 1987). The PANSS is administered with semi-structured interview administered by a trained researcher to a standardized level of reliability. The PANSS has been widely used internationally in clinical research and has been found to have good psychometric properties (Kay Opler & Lindenmayer, 1988; Peralta & Cuesta, 1994). The PANSS has three outcome scores: positive, negative, and general symptomatology. Only the positive symptom scale and the general psychopathology scale were extracted. The positive symptom scale contains seven items rated from 1 (absent) to 7 (extreme). Total scores range from 7 to 49, with higher scores indicating more severe positive symptoms.

General psychopathology was extracted as a factor on the PANSS (Kay et al., 1987). The general psychopathology scale contains sixteen items rated from 1 (absent) to 7 (extreme). Total scores range from 16-112, with higher scores indicating a higher level of general psychopathology.

Social and occupational functioning was measured using the Social and Occupational Functioning Assessment Scale (Goldman, Skodol & Lave, 1992; Morosini, Magliano, Brambilla, Ugolini & Pioli, 2000). This is an observer rated scale that considers social and occupational functioning over the past month on a continuum from 0 to 100, with a higher score indicating higher levels of functioning and engagement in a wider range of social and occupational activities.

Health-related quality of life was measured using the EQ-5D-5L (Herdman et al., 2011), a self-report measure with five items covering five dimensions of health-related quality of life: mobility, self-care, pain and discomfort, anxiety and depression, and usual activities. Respondents rate their difficulty in each domain on a scale from 1 (no problems) to 5 (extreme problems). Total scores range from 5 to 25, with a higher score indicating lower health-related quality of life. The EQ-5D-5L has excellent psychometric properties and has been used across a range of populations and settings (Feng, Kohlmann, Janssen & Buchholz, 2021). It has been found to be a valid and reliable measure of quality of life in adults with psychotic spectrum disorders (Pitkänen et al., 2012; Prieto et al., 2004).

2.4 Lived experience involvement

A proposal for this study was reviewed by the Feasibility and Acceptability Support Team for Researchers (FAST-R) Service, a patient and public involvement group involving people with experience of mental health problems. The goal categorisation framework was informed by the views of members of a Lived Experience Advisory Panel of people with lived experience of first episode psychosis.

2.5 Procedure

2.5.1 Goal categorisation

The development of the categorisation framework and the subsequent categorisation of the goals was an iterative process. This was informed throughout by the views of members of a Lived Experience Advisory Panel of people with lived experience of FEP, and of using psychosis services.

Initially, the first 94 goals in the database (11% of the total goals) were reviewed by a Trainee Clinical Psychologist and an independent Research Worker with lived experience. Provisional categories were developed based on themes identified throughout the data, these were:

1. Daily life skills (e.g. doing chores, shopping alone, learning to drive, budgeting),
2. Employment (e.g. applying for jobs, improving job performance),
3. Education (e.g. applying for courses, keeping up with college work),
4. Health & Wellbeing (e.g. improving diet, quitting smoking, going for walks),
5. Relationships (e.g. seeing friends and family, meeting new people, improving conversation skills),
6. Recreation/Hobbies (e.g. reading, practising a musical instrument, learning a language),
7. Other (e.g. praying more often).

The 94 goals were jointly categorised according to these initial categories. A Lived Experience Advisory Panel was convened on 24th October 2022 to discuss the categorisation process and seek feedback. The panel included three members with lived experience of psychosis and using psychosis services. After receiving a brief outline of the aims of the study, an outline of the proposed goal categories was presented, and feedback was sought in relation to the categories' appropriateness and relevance. A slideshow was then presented containing 44 of the initially categorised goals: this included all goals for which LP and TC had been unable to agree on a category, in addition to other goals where agreement was reached. Participants were shown a goal, and each person was asked which category they thought it belonged to. Where there was agreement, panel members were asked to expand on their reasons for the choice. Where there was disagreement, members were asked to elaborate on their rationale for the choice and to discuss to produce overall agreement. If agreement was not possible the goal was categorised based on the majority view of the panel members.

Feedback and discussions in the panel informed the names and definitions of the goal categories. For example, the 'Daily life skills' and 'Recreation & Hobbies' categories were renamed. In addition, a 'Miscellaneous' category was developed for goals which fell into multiple categories, and an 'Unclear' category was developed for goals for which the purpose was unintelligible. Based on discussions with the panel, a document was drawn up defining and differentiating the categories (see Appendix A). Of the 94 goals that had been categorised jointly by authors LP and TC prior to the panel meeting, the 50 goals that had not been discussed with the panel were then reviewed jointly by LP and TC to ensure the categories were consistent with the agreed approach.

The remaining 844 goals were then categorised independently by authors LP and TC according to the Lived Experience Advisory Panel categorisation framework. Of these goals categorised independently, there was agreement on the category for 91.4% of the goals. A second Lived Experience Advisory Panel met on 20th February 2023 with the same three participants, and all the goals with no agreement were discussed, i.e., 73 goals (8.6%). Following this process, one third still had no agreed category, and a final category decision was made following discussion with a third researcher (MC).

2.6.2 Goal subcategories

Goals were also sorted into subcategories for descriptive purposes. The process of developing subcategories was informed but did not involve direct input from the Lived Experience Advisory Panel. Subcategories were agreed based on the observed goals, and approximately 10% of the goals were sorted into categories jointly by TC and LP. A document was drawn up defining and differentiating the subcategories (see Appendix B), and the remaining goals were sorted into subcategories independently by researchers LP and TC. Disagreements about subcategory allocations were resolved through discussion. Goals which had been categorised as Unclear (N=4) or Miscellaneous (N=21) were excluded from this process.

2.6 Analyses

2.6.1. Data quality

Where less than 33% of items were missing, data were imputed for individual items on the PANSS Positive, PANSS General, CAINS motivation and pleasure scale, CAINS expression scale, and EQ-5D-5L (details of imputation can be found in Appendix C).

2.6.2 Data analysis

To characterise the clinical and demographic characteristics of the sample, and to summarise final category assignments (the prevalence of different goal types), data were presented descriptively. Following the categorisation process, goals categorised as unclear and miscellaneous were excluded, and any small categories that were linked were combined. All data were analysed in Stata/SE 18.0 (Stata Corp, 2023).

Differences between goal categories: To test whether ratings of importance were significantly different between goal categories, one-way Analysis of Variance (ANOVA) was used with the goal category as the dependant variable and goal importance rating as the independent variable. To test whether ratings of difficulty were significantly different between goal categories, one-way ANOVA was used with goal category as the dependant variable and goal difficulty rating as the independent variable. Tukey post-hoc tests were conducted to investigate pairwise comparisons between goal categories. These analyses were conducted with all categorised goals for which there was an associated rating of importance or difficulty.

Relationships to motivation and pleasure: We first aimed to determine whether there was a significant difference in CAINS motivation and pleasure domain score across the goal categories. As there may be differences in the choice of goals by gender and age (Iyer et al., 2011), and as cultural context might influence perspectives on recovery (Islam et al., 2015; Singh et. al., 2015), age, gender and ethnicity were considered as covariates the analyses. Pearson's Chi squared tests were conducted to determine whether there were significant differences between gender and ethnic groups in goal category frequencies. A one-way ANOVA was conducted with the first goal as the dependant variable and CAINS motivation and pleasure score as the independent variable, with age as a covariate. All variables were entered into the analysis at the same time. The significance level was set at $p<0.05$. The same analysis was repeated with the second goal and the third goal as the dependant variable.

We also aimed to determine whether more severe difficulties in the CAINS motivation and pleasure domain predicted lower ratings of goal importance. Goal importance was treated as a continuous variable (ranging from 1-3). A multiple linear regression analysis was carried out with rating of importance for the first goal as the dependant variable and CAINS motivation and pleasure score as the independent variable. Self-esteem was added as a covariate, and all variables were entered into the regression model at the same time. The significance level was set at $p<0.05$. The same analysis was repeated with the second goal and the third goal as the dependant variable.

Finally, we aimed to determine whether more severe difficulties in the CAINS motivation and pleasure domain predicted higher ratings of goal difficulty. Goal difficulty was treated as a continuous variable (ranging from 1-3). A multiple linear regression analysis was carried out with rating of difficulty for the first goal as the dependant variable and CAINS motivation and pleasure score as the independent variable. Self-esteem was added as a covariate, and all variables were entered into the regression model at the same time. The significance level was set at $p<0.05$. The same analysis was repeated with the second goal and the third goal as the dependant variable.

3. Results

3.1 Sample description

The sample included 375 participants who were predominantly men (72.8%), single (88.0%), and of white ethnicity (49.2%). Participants primarily lived in their parental home (54.3%) and were unemployed (66.1%). Reflecting the trial inclusion criteria, participants ranged in age from 16 to 46, with a median age of 25. Motivation and pleasure domain scores were normally distributed and ranged from 0 to 34 (out of a possible range of 0 to 36); the median score was 14. Scores on the expression domain were relatively lower, the median score was 2 (out of a possible range of 0 to 16). Self-esteem scores were normally distributed and ranged from 2 to 30 (out of a possible range of 0 to 30); the median score was 17. Health-related quality of life was relatively low in the sample, the median score was 8 (out of a possible range of 5 to 25). Positive symptoms were also relatively low, scores ranged from 7 to 30 (out of a possible range of 7 to 49) with a median score of 12. General psychopathology scores were also low, ranging from 16 to 28 (out of a possible range of 16 to 112). Scores on the Social and Occupational Functioning scale were normally distributed, the median score was 65 (out of a possible range of 0 to 100). Further details can be found in Table 1.

Table 1. Demographic and clinical characteristics of the sample

Demographic characteristics		**N**			**%**
Male		273			72.8
Ethnicity					
White		184			49.2
Black (African, Caribbean)		104			27.8
Asian (Bangladeshi, Indian, Pakistani)		43			11.5
Other (Other or mixed ethnic groups)		43			11.5
Relationship status					
Single		329			88.0
Living with partner		28			7.5
Married/civil partnership		12			3.2
Separated/divorced		5			1.3
Living situation					
Own property (private, rented)		116			31.0
Parental home		203			54.3
Temporary Accommodation		15			4.0
Supervised group home		21			5.6
Supervised Hostel		19			5.1
Employment status					
Unemployed		248			66.1
Primary childcare giver		4			1.1
Full-time education		52			13.9
Part-time employed		36			9.6
Full-time employed		35			9.3
	M	**SD**	**Min**	**Max**	**Median**
Age (years)	26.1	6.1	16	46	25
Clinical characteristics					
CAINS Motivation & Pleasure (0-36)	14.5	7.1	0	34	14
CAINS Expression (0-16)	3.4	4.0	0	16	2
PANSS Positive symptoms (7-49)	13.0	5.2	7	30	12
PANSS General psychopathology (16-112)	29.6	8.4	16	65	28
SOFAS Social & occ. functioning (0-100)	63.8	14.7	15	100	65
EQ-5D-5L Health-related Quality of Life (5-25)	8.4	3.1	5	22	8
RSES Self-esteem (0-30)	17.1	5.5	2	30	17

Abbreviations: CAINS, Clinical Assessment Interview for Negative Symptoms. PANNS, The Positive and Negative Syndrome Scale. SOFAS: Social and Occupational Functioning Assessment Scale. Social & occ. Functioning, Social and occupational functioning. RSES, Rosenberg Self-esteem Scale.

Missing data: Ethnicity, N=1. Relationship status, N=1. CAINS Motivation & Pleasure, N=1. CAINS expression, N=3. PANSS Positive symptoms, N=1. PANSS General psychopathology, N=1. EQ-5D-5L, N=3.

3.2 Goal categories

There were 938 goals in total, identified by 375 participants. On average, 2.5 goals were identified per participant. The most common number of goals identified was three (N=200, 53.3%), although 163 participants (43.5%) identified two goals, and 12 participants (3.2%) identified only one.

Table 2. Goal category descriptions and goal examples

Category	Goal category description	Examples
Employment	Seeking voluntary or paid employment, getting promoted in or improving performance in a current role (e.g. getting to work on time, concentrating while at work, improving relationships with colleagues). Includes educational or vocational courses (e.g. plumbing) that involve work placement.	*Look for plumbing courses for 1 hour per week and update CV* *Schedule 2 hours a week job seeking* *Improve concentration to achieve more on 'to do' list at work each day*
Education	Seeking participation in formal education or obtaining an educational qualification (e.g. A Levels, college qualifications, university degrees), or participation in any other educational course. Improving performance in an educational setting (e.g. reviewing lectures, completing coursework, studying).	*Focus on degree applications for 4 hours a week, every week* *Study for university exams for 3 hours a week* *Plan, prepare or read for homework/classes for 1.5 hours everyday*
Health & Wellbeing	Improving physical health or mental wellbeing by increasing daily movement, improving the nutritional content of diet, losing weight, improving sleep, reducing or stopping substance use, or improving emotional or mental wellbeing through regular practices such as meditation.	*To go to the gym 3x per week* *To walk to the park once a week* *To organise & cook at least 1 healthy meal a day* *To reduce the number of cigarettes smoked per day to 4* *Breathing exercises 3 times per week*
Relationships	Spending time with or improving relationships with family members or friends, including text messages and phone calls. Meeting new people, or improving social skills (e.g. remembering names, focusing on conversations).	*Contact mum or sister each week* *Contact friends 2x per week for 30 minutes* *Improve memory to remember more personal details about the people I meet* *Initiating a 5-minute conversation in the walking group*
Leisure & Hobbies	Seeking engagement in an activity which is considered by the rater to a hobby, recreational activity, creative pursuit, or form of independent learning or self-improvement	*Play the guitar 1x a week for 1 hour* *To read for 20 minutes a day* *To concentrate fully on a film for the duration*

	in the absence of an educational qualification (e.g. reading fiction or non-fiction, coding, tattooing, photography, using a language app, practising a musical instrument).	*Concentrate on art for one hour at a time once a week* *I will use self-teaching coding app for 20 mins, twice per week.* *Study Arabic online for 2.5 hours a week*
Day-to-day life skills	Planning and organisational skills, including independently or consistently taking medication and attending appointments, establishing a routine, and increasing general activity level. Development of skills that are used by most people in daily life, cannot be conceptualised as a hobby or leisure activity, and are not explicitly related to health, relationships, education, or employment (e.g. following a recipe, using public transport, learning to drive, managing finances, domestic chores, administrative tasks).	*To leave the house once per day to go to a particular place (purposeful activity)* *Write down a plan of what I'd like to achieve each week* *To remember to take my medication 6 times a week.* *Use calendar on phone to remember appointments* *Write to do list of cleaning tasks each week and aim to complete* *Save £100 per month* *Plan time to play memory games* *Study for theory test for 1 hour every other day*
Miscellaneous	Various goals not fitting into other categories.	*Remember to look online at opportunities each week to decide area of interest* *Be able to function*
Unclear	Any goal for which the purpose is unintelligible to the rater and cannot be interpreted.	*Focus and write reviews 4x a week, 2x hours per time.* *To add 15 listing on two websites each day*

Six goal categories were identified: Day-to-day Life Skills, Employment, Education, Health & Wellbeing, Relationships, and Leisure & Hobbies. The majority (98.1%) of goals could be sorted into these categories. There was also a Miscellaneous category and an Unclear category (N=18). Category descriptions and examples of goals that were assigned to each category are presented in Table 2. The largest categories were Day-to-day Life Skills (26.9% of total goals), Leisure & Hobbies (21.0% of total goals), and Health & Wellbeing (17.8% of total goals). Goal category and subcategory numbers for all 938 goals can be found in Table 3.

Table 3. Goal categories and subcategories

Goal category & sub-category	Number of goals	% of total goals	1st Goal N	2nd Goal N	3rd Goal N
Total goals	938	-	375	363	200
Day-to-day Life Skills	**252**	**26.9%**	100	94	58
Routine & activity	81	8.6%			
Household chores	40	4.3%			
Medication & appointments	40	4.3%			
Managing finances	36	3.8%			
Cognitive abilities	25	2.7%			
Transportation	16	1.7%			
Skill building	14	1.5%			
Employment	**108**	**11.5%**	49	42	17
Seeking employment	80	8.5%			
Current employment	28	3.0%			
Education	**71**	**7.6%**	34	24	13
Seeking education	9	1.0%			
Current education	62	6.6%			
Health & Wellbeing	**167**	**17.8%**	54	77	36
Exercise	107	11.4%			
Improving diet	32	3.4%			
Sleep	9	1.0%			
Substances	8	0.9%			
Emotional wellbeing	6	0.6%			
Miscellaneous	5	0.5%			
Relationships	**125**	**13.3%**	35	60	30
Current relationships	53	5.7%			
Improving social skills	38	4.1%			
Expanding social network	34	3.6%			
Leisure & Hobbies	**197**	**21.0%**	93	64	40
Reading	77	8.2%			
Creative pursuits	61	6.5%			
Consuming media	23	2.5%			
Independent learning	22	2.3%			
Games	7	0.7%			
Seeking activities	5	0.5%			
Miscellaneous	2	0.2%			
Miscellaneous	**14**	**1.5%**	6	2	6
Unclear	**4**	**0.4%**	4	0	0

3.3. Goal categories for analyses

Goals in the Miscellaneous and Unclear categories (N=18) were excluded from the analyses, leaving 365 first goals, 361 second goals, and 194 third goals (920 goals in total). The employment and education categories were relatively small and were combined to create one, larger category. The final goal category variable had five groups: Day-to-day Life Skills, Employment & Education, Health & Wellbeing, Relationships, and Leisure & Hobbies. Table 5 presents descriptive data for mean scores and percentages for goal categories for the first and second goals, according to demographic and clinical variables. Descriptive data for the third goals can be found in Supplementary Table 1, Appendix D.

3.4 Goal importance and goal difficulty

Ratings of goal importance were missing for 4.0% of goals (N=37). There were 883 categorised goals with an importance rating, of which the majority (N=508, 57.5%) were rated as ‘very important.’ The median rating of importance was 3, and importance data were positively skewed. Ratings of goal difficulty were missing for 5.5% of goals (N=51). There were 869 categorised goals with a difficulty rating, of which the majority (N=448, 51.6%) were rated as ‘Moderately difficult’ to achieve. The median rating of goal difficulty was 2. Mean ratings of goal importance and goal difficulty for goals, and mean ratings between categories, can be found in Table 4.

Table 4. Ratings of importance and difficulty[†]

		Importance (1-3)		Difficulty (1-3)
	N	M (SD)	N	M (SD)
All goals[‡]	883	2.50 (0.64)	869	2.00 (0.70)
Goal 1 (primary goal)	364	2.53 (0.60)	359	1.97 (0.67)
Goal 2 (secondary goal)	349	2.49 (0.64)	341	1.99 (0.70)
Goal 3 (third goal)	188	2.45 (0.68)	187	2.09 (0.72)
Goal categories				
Day-to-day Life Skills	242	2.57 (0.63)	240	2.08 (0.70)
Employment & Education	173	2.64 (0.57)	168	1.90 (0.69)
Health & Wellbeing	157	2.50 (0.64)	156	2.02 (0.68)
Relationships	118	2.49 (0.58)	115	1.97 (0.71)
Leisure & Hobbies	193	2.28 (0.69)	190	1.99 (0.71)

Abbreviations: M, Mean. SD, Standard Deviation.

[†] Goals categorised as miscellaneous or unclear (N=18) are not included.

[‡] Data represent multiple ratings of importance and difficulty made by the same individuals.

There was no significant difference in ratings of difficulty between goal categories (F(4,864) = 1.67, p = 0.155). There was a statistically significant difference in ratings of importance between goal categories (F(4,878) = 8.46, p < 0.0001). Ratings of importance were significantly lower for goals in the Leisure & Hobbies category compared to all other categories: Employment & Education (2.28 ± 2.64, p < 0.0001), Day-to-day Life Skills (2.28 ± 2.57, p < 0.0001), Health & Wellbeing (2.28 ± 2.50, p = 0.015), and Relationships (2.28 ± 2.49, p = 0.040). There were no other significant differences between categories.

Table 5. Mean scores and percentages within goal categories for first and second goals

	Day-to-Day Life Skills		Employment & Education		Health & Wellbeing		Relationships		Leisure & Hobbies	
	Goal 1	Goal 2	Goal 1	Goal 2	Goal 1	Goal 2	Goal 1	Goal 2	Goal 1	Goal 2
N (%) †										
Male	70 (26.4%)	63 (24.0%)	61 (23.0%)	47 (17.9%)	39 (14.7%)	63 (24.0%)	30 (11.3%)	44 (16.7%)	65 (24.5%)	46 (17.5%)
Female	30 (30.0%)	31 (31.6%)	22 (22.0%)	19 (19.4%)	15 (15.0%)	14 (14.3%)	5 (5.0%)	16 (16.3%)	28 (28.0%)	18 (18.4%)
White	61 (33.7%)	55 (30.7%)	34 (18.8%)	26 (14.5%)	19 (10.5%)	36 (20.1%)	17 (9.4%)	31 (17.3%)	50 (27.6%)	31 (17.3%)
Black	24 (24.5%)	26 (26.0%)	26 (26.5%)	24 (24.0%)	16 (16.3%)	20 (20.0%)	11 (11.2%)	13 (13.0%)	21 (21.4%)	17 (17.0%)
Asian	7 (16.7%)	5 (12.8%)	12 (28.6%)	11 (28.2%)	8 (19.1%)	6 (15.4%)	5 (11.9%)	8 (20.5%)	10 (23.8%)	9 (23.1%)
Other/mixed	8 (18.6%)	8 (19.1%)	10 (23.3%)	5 (11.9%)	11 (25.6%)	14 (33.3%)	2 (4.7%)	8 (19.1%)	12 (27.9%)	7 (16.7%)
M (SD)										
Age	26.1 (6.8)	26.3 (6.47)	26.5 (6.8)	26.4 (6.3)	26.9 (6.2)	26.1 (5.37)	23.6 (4.8)	26.0 (6.5)	26.0 (5.0)	26.3 (6.1)
CAINS MAP (0-36)	14.0 (6.9)	14.5 (7.3)	13.6 (6.9)	15.1 (6.6)	15.8 (7.3)	14.9 (7.3)	15.6 (7.2)	13.1 (6.1)	14.8 (7.6)	14.4 (7.5)
CAINS EXP (0-16)	3.3 (3.9)	2.8 (3.3)	3.4 (4.3)	3.8 (4.4)	3.1 (3.9)	3.9 (4.0)	3.9 (3.9)	3.5 (4.1)	3.8 (3.9)	3.0 (3.7)
PANSS Positive (7-49)	13.3 (5.0)	13.2 (5.0)	11.4 (4.6)	11.7 (3.9)	13.4 (4.9)	12.9 (5.3)	13.2 (5.5)	13.4 (5.3)	13.7 (5.6)	14.3 (6.2)
PANSS General (16-112)	29.8 (8.5)	28.8 (7.7)	27.6 (7.6)	28.0 (6.5)	30.4 (8.0)	30.3 (9.2)	29.3 (7.1)	31.4 (8.4)	30.6 (9.3)	30.7 (9.6)
SOFAS (0-100)	61.7 (15.9)	62.4 (14.0)	66.9 (13.4)	63.8 (14.1)	62.7 (12.9)	65.2 (15.1)	64.9 (13.0)	65.2 (15.1)	63.1 (15.8)	63.6 (15.0)
EQ-5D-5L (5-25)	8.8 (3.4)	8.8 (3.4)	8.3 (2.9)	7.6 (2.3)	8.1 (3.1)	8.5 (3.3)	8.3 (3.0)	8.7 (3.0)	8.4 (3.0)	8.6 (3.0)
RSE (10-40)	16.4 (5.4)	16.5 (6.0)	17.5 (5.2)	18.2 (5.0)	18.2 (5.2)	17.8 (5.8)	17.3 (5.5)	16.1 (4.8)	16.5 (5.7)	16.5 (5.2)

Abbreviations: M, Mean. SD, Standard Deviation. CAINS, Clinical Assessment Interview for Negative Symptoms. MAP, Motivation & Pleasure. EXP, Expression. PANSS, Positive and Negative Syndrome Scale. SOFAS, Social and Occupational Functioning Assessment Scale. RSE, Rosenberg Self-esteem Scale. EQ-5D-5L, Health-related quality of life questionnaire. Missing data: Ethnicity, N=1. CAINS Motivation & Pleasure, N=1. CAINS expression, N=3. PANSS Positive symptoms, N=1. PANSS General psychopathology, N=1. EQ-5D-5L, N=3.

† Percentage of primary goals or secondary goals.

3.5 Goal categories and negative symptoms

The first analysis tested whether there were differences in the motivation and pleasure domain scores between goal categories, and specifically, whether motivation and pleasure scores were higher (representing more severe difficulties) in the Day-to-day Life Skills category. Gender and ethnicity were not included as covariates because there were no differences in goal category frequency between men and women participants for the first goal (p = 0.441), second goal (p = 0.301), or third goal (p=0.590), and no significant difference between ethnic groups in goal categories for first goal (p = 0.135), second goal (p = 0.155), or third goal (p = 0.977). The only covariate included in the analysis was age. There were no differences in motivation and pleasure scores between the five goal categories for the first goal (F = 1.21, p = 0.204), for the second goal (F = 0.92, p = 0.608), or for the third goal (F = 1.12, p = 0.321).

3.6 Goal importance and negative symptoms

We determined whether more severe difficulties in the motivation and pleasure domain predicted lower ratings of goal importance. The regression model was not statistically significant for the first goal (F(2,360) = 1.21, p = 0.301), the second goal (F(2,345) = 1.83, p = 0.162), or the third goal (F(2,184) = 1.87, p = 0.157). Neither self-esteem nor negative symptoms added statistically significantly to the predictions (these results are reported in Table 6).

3.7 Goal difficulty and negative symptoms

We determined whether more severe difficulties in the motivation and pleasure domain predicted higher ratings of goal difficulty. The regression model was statistically significant for the first goal (F(3,355) = 7.88, p = 0.0004), and the third goal (F(2,183) = 6.01, p = 0.003). The regression model was not statistically significant for the second goal (F(2,337) = 2.18, p = 0.115). Only self-esteem added statistically significantly to the predictions, negative symptoms did not (these results are reported in Table 6).

Table 6. Association between negative symptoms and ratings of importance and difficulty

	First goal importance (1-3)			**Second goal importance** (1-3)			**Third goal importance** (1-3)		
	β	95% CI	P-value	β	95% CI	P-value	β	95% CI	P-value
CAINS MAP	-0.007	-0.016 to 0.002	0.121	-0.010	-0.018 to 0.001	0.094	0.009	-0.006 to 0.023	0.256
RSE	-0.002	-0.013 to 0.010	0.788	-0.008	-0.020 to 0.005	0.223	-0.011	-0.030 to 0.007	0.228

	First goal difficulty (1-3)			**Second goal difficulty** (1-3)			**Third goal difficulty** (1-3)		
	β	95% CI	P-value	β	95% CI	P-value	β	95% CI	P-value
CAINS MAP	0.003	-0.007 to 0.012	0.601	0.000	-0.011 to 0.011	0.981	-0.002	-0.017 to 0.013	0.818
RSE	-0.025	-0.038 to -0.012	**0.000***	-0.015	-0.029 to -0.001	**0.042***	-0.033	-0.052 to -0.014	**0.001***

Abbreviations: β, Beta. 95% CI, 95% Confidence Interval. CAINS MAP, Clinical Assessment Interview for Negative Symptoms motivation and pleasure scale. RSE, Rosenberg Self-esteem scale.

Note: Data are presented to three decimal places due to ratings of goal difficulty and goal importance ranging from 1-3.

First goal importance, N=363. Second goal importance, N=348. Third goal importance, N = 187.
First goal difficulty, N=357. Second goal difficulty, N=339. Third goal difficulty, N = 186.

4. Discussion

In this study, we found that most recovery goals identified by EIP service users can be reliably categorised, according to a process informed by lived experience expertise. Most recovery goals (98.1%) identified by service users could be sorted into the following five categories, in order of frequency: Day-to-Day Life Skills, Leisure & Hobbies, Employment & Education, Health & Wellbeing, and Relationships.

4.1 Goal categories

The Day-to-Day Life Skills category encompasses goals around the development of organisational skills, increasing general activity levels, and establishing a daily routine, in addition to independence with aspects of daily life such as remembering and attending appointments, financial management, and household maintenance. Discussions in the LEAP meetings indicated that these skills shared the common theme of being fundamental to managing the day-to-day elements of life, and such goals might be considered foundational to achieving recovery goals in other areas. Consideration should be given to how services can support people with these aspects of recovery. The frequent choice of goals related to Day-to-Day Life Skills may reflect the stage of recovery in this early psychosis sample. The prevalence of these goals may also reflect executive functioning difficulties, which are known to be common in FEP (Riley et al., 2000). Age may also be relevant as executive functioning continues to develop into early adulthood (Ferguson, Brundson & Bradford, 2021). Additionally, most of the current sample still lived in their parental home (54.3%), and goals around developing Day-to-Day Life Skills may be pertinent for young adults as they aim to begin living independently.

In a similar study, Iyer and colleagues (2011) identified religious goals, finances, and household responsibilities as separate categories, and did not identify Leisure & Hobbies as a distinct category. These different findings may indicate cultural differences in recovery goals between service users in India and the UK. Notably, the agreed goal categories in the current study were like those captured by Ramsay and colleagues (2011) in the United States, which shares more cultural similarities with the UK. Findings may also reflect similarities between the demographic makeup of the current sample and that of the USA sample (Mean age 24.3, 74.0% male). Participants in the study from India were older and made up of more female participants (Mean age: 29.79, 44.11% male).

Leisure and Hobbies was the second largest category in the current study, and goals were mainly related to increasing the frequency of reading (39.1%) or engaging in creative pursuits (31.0%), activities that may be related to aspects of personal recovery (e.g. identity, meaning), but are not frequently captured by outcome measures. Engagement with activities related to Leisure & Hobbies appears to be meaningful for service users, although such outcomes may be perceived as holding less clinical or economic value (e.g. compared to Employment, Education, and Health & Wellbeing goals), a judgment perhaps reflected in the significantly lower ratings of importance given to these goals. If interventions related to Leisure & Hobbies cannot be offered, service providers should make efforts to refer service users to third sector organisations that can support them in this area of recovery.

Recovery goals were also frequently related to Employment and Education, widely understood to be key to the psychosocial development of young adults, providing opportunities for connection and identity development (Arnett, Žukauskienė & Sugimura, 2014). The current study highlights that vocational interventions should continue to be a feature of mental health care for individuals following FEP, the efficacy of which is well established (Bond, Drake & Luciano, 2015). The current study differs from previous research on recovery goals among people with FEP in the United States (Ramsay et al., 2011) and India (Iyer et al., 2011), in which employment-related goals were the most common. Differential findings may reflect the comparative size and influence of the welfare state in the UK, which perhaps enables people to focus on other aspects of their recovery at an earlier stage of the process, prior to seeking out employment opportunities.

Health & Wellbeing was also a recovery priority for people with FEP, with goals in this category most frequently related to exercise (64.1%) and improving diet (19.2%). Service users should be supported with this aspect of their recovery, with increased commissioning of dietary and physical activity-based interventions. Not only would this reflect service user priorities, but physical activity improves quality of life and wellbeing (Marquez et al. 2020), and there is evidence that non-pharmacological lifestyle interventions for people with FEP can improve negative symptoms, verbal short-term memory, and psychosocial functioning (Curtis et al., 2016; Firth et al., 2018). Research on service user perspectives indicates that collaborative lifestyle interventions are acceptable to people with FEP (Pedley et al., 2018). Ensuring service users are offered this support may also mitigate metabolic abnormalities and weight gain associated with antipsychotic medications, a major concern in clinical practice (Barton, Segger, Fischer, Obermeier & Musil, 2020; Pérez-Iglesias et al., 2014) and for service users themselves (Keogh et al., 2022).

Relationships could be supported through fostering relationships with family and friends (e.g. Family Intervention for Psychosis), expanding one's social network (e.g. peer support groups), and improving social skills (e.g. social skills training). However, implementation and delivery of evidence-based interventions into everyday clinical practice is challenging (Addington et al., 2018). For example, implementation rates for Family Intervention for psychosis are low and vary between 0% and 53%, despite this being a first-line recommended intervention (Bucci, Berry, Barrowclough & Haddock, 2016). Goals related to relationships were the least frequently identified, this is at odds with findings of a systematic review and thematic synthesis of service user perspectives, which identified support from meaningful social relationships as a particularly important aspect of recovery from psychosis (Wood & Alsawy, 2018). However, this review was not solely focused on an early psychosis population, and it may be that our findings reflect the life stage of the sample, most of whom were living in their parental home (54.3%) and were perhaps relatively satisfied with their relationships.

4.2 Negative symptoms and recovery goals

There was no evidence for the hypothesis that people with more severe difficulties in the motivation and pleasure domain would be more likely to identify goals related to Day-to-Day Life Skills. There are several possible explanations for this finding. The Day-to-Day Life Skills category captured a range of goals, some of which might be judged to require equal motivation to goals in other categories. Additionally, the current study only captures goal intentions and does not account for other aspects of motivation such as goal-directed activity, and the agreed categorisation process did not account for the steps required to achieve a goal. For example, 32% of goals in the Day-to-Day Life Skills category were related to establishing a routine, which requires the development of habits through the repetition of a range of behaviours, all of which may require high levels of motivation initially. Overall, our findings suggest that individuals with more severe negative symptoms do not differ from those with less severe negative symptoms in terms of what they prioritise in their recovery, and consideration of service provision to these individuals should focus more on their ability to engage in the interventions offered than the types of interventions offered.

4.3 Negative symptoms and goal importance and difficulty

We hypothesised that difficulties with negative symptoms in the motivation and pleasure domain would predict ratings of goal importance, as motivation to engage in an activity is thought to depend on estimation of the value of doing so (Thonon et al., 2020). There was no evidence for this hypothesis: our results suggest that people with more severe motivation and pleasure difficulties do not perceive their goals to hold less value. Most recovery goals were rated as ‘very important,’ likely because they were personally chosen. However, this meant there was little variance in goal importance ratings, with which may have presented difficulties for the analysis. It should be acknowledged that ‘importance’ and ‘value’ may not be understood as the same concept to participants, although the significantly lower ratings of importance assigned to goals in the Leisure & Hobbies category indicates that this might be the case for participants in the current study.

We also hypothesised that difficulties with negative symptoms in the motivation and pleasure domain would predict higher ratings of goal difficulty, as motivation is thought to depend partly on estimation of required effort (Thonon et al., 2020). There was no evidence for this hypothesis: more severe motivation and pleasure difficulties did not predict participant perceptions of goal difficulty. Assuming that ‘difficulty’ and ‘effort’ are similar constructs, our findings suggest that challenges with translating goal intentions into goal-directed activity for people with more severe negative symptoms are not due to increased estimation of effort. However, difficulty was rated on a three-point scale, and our findings may reflect limited variance in difficulty ratings.

Our findings are consistent with the model of motivation (Thonon et al., 2020), as there was a stronger role for self-esteem as a predictor of ratings of goal difficulty, with lower scores on the Rosenberg Self-Esteem scale predicting higher ratings of goal difficulty. Evidence suggests an association between negative symptoms and self-esteem (Jones, Hansen, Moskvina, Kingdon & Turkington, 2010; Palmier-Claus et al., 2011), and further research might focus on understanding the role of self-esteem in translating goal intentions into goal-directed activity for people with negative symptoms.

4.4 Strengths and limitations

One of the main strengths of this study was the expertise sought from people with lived experience of recovery from FEP. There were many possible approaches to the goal categorisation process, and this expertise increases the chance that categories chosen are a valid and meaningful representation of the original recovery goals, and more broadly, a valid and meaningful measurement of what is important to people in their recovery that can be generalised to people with a diagnosis of FEP in the UK. Additionally, participants were recruited from EIP services from urban and rural areas across the UK, including ethnically and culturally diverse populations, which suggests the findings are generalisable. Further evidence for the validity of the categories comes from the high level of agreement on the chosen category for goals (91.4%) during the categorisation process. However, the process of categorisation itself reduces the nuance and complexity of the data, with qualitatively recorded recovery goals represented quantitively.

One of the limitations of the current study was that the recovery goals were set in the specific context of a Randomised Controlled Trial, and participants may have set goals that they perceived as relevant to the Cognitive Remediation intervention. For example, there may have been a perception that a Cognitive Remediation intervention was less suited to achieving recovery goals around relationships. The limited range of values for rating goal importance and difficulty (1-3) and positive skew for the goal importance variable may also have affected the potential of the analyses to highlight significant relationships. Another limitation is the focus on the goal intention stage. A person with psychosis may report enjoying an activity, and experience consummatory pleasure while engaging in that activity, but may not be able to use this emotional information to engage in the relevant goal-directed behaviours to obtain this reward (Kring & Barch, 2014). It is possible that the role of negative symptoms in motivation and goal-directed behaviour may be more relevant during the process of translating goal intentions into goal-related activity. Further research is needed before clinical implications can be considered.

4.5 Clinical implications

Service providers and clinicians should consider how services can support people with early psychosis to achieve their goals related to Day-to-Day Life Skills. People with early psychosis should be offered vocational interventions, non-pharmacological lifestyle interventions (with a focus on diet and exercise), and interventions to improve relationships and social skills. Efforts should be made to support service users with their recovery goals related to leisure and hobbies, for example by developing links with third-sector organisations.

4.6 Conclusions

Service users' goals show that they are prioritising aspects of recovery which are not captured by traditional outcome measures. EIP services should ensure the provision of interventions targeting these goals, either within services or through referral to third sector organisations. According to the goal categorisation process in the current study, service users do not appear to vary in what they prioritise in their recovery according to demographic characteristics or motivation and pleasure difficulties, Negative symptoms do not appear to impact perceptions of goal importance or goal difficulty at the goal setting stage and may be of more relevance to the construct of motivation when initiating goal-directed activity. Future research should consider the role of self-esteem and perceptions of goal difficulty in recovery goal attainment.

References

Addington, D., Birchwood, M., Jones, P., Killackey, E., McDaid, D., Melau, M., Mizuno, M., Mueser, K., & Nordentoft, M. (2018). Fidelity scales and performance measures to support implementation and quality assurance for first episode psychosis services. *Early Intervention in Psychiatry*, *12*(6), 1235–1242. https://doi.org/10.1111/eip.12684

Andreasen, N. C., Carpenter, W. T., Kane, J. M., Lasser, R. A., Marder, S. R., & Weinberger, D. R. (2005). Remission in Schizophrenia: Proposed Criteria and Rationale for Consensus. *American Journal of Psychiatry*, *162*(3), 441–449. https://doi.org/10.1176/appi.ajp.162.3.441

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal*, *16*(4), 11–23. https://doi.org/10.1037/h0095655

Arnett, J. J., Žukauskienė, R., & Sugimura, K. (2014). The new life stage of emerging adulthood at ages 18–29 years: Implications for mental health. *The Lancet Psychiatry*, *1*(7), 569–576. https://doi.org/10.1016/S2215-0366(14)00080-7

Austin, S. F., Mors, O., Secher, R. G., Hjorthøj, C. R., Albert, N., Bertelsen, M., Jensen, H., Jeppesen, P., Petersen, L., Randers, L., Thorup, A., & Nordentoft, M. (2013). Predictors of recovery in first episode psychosis: The OPUS cohort at 10year follow-up. *Schizophrenia Research*, *150*(1), 163–168. https://doi.org/10.1016/j.schres.2013.07.031

Barton, B. B., Segger, F., Fischer, K., Obermeier, M., & Musil, R. (2020). Update on weight-gain caused by antipsychotics: A systematic review and meta-analysis. *Expert Opinion on Drug Safety*, *19*(3), 295–314. https://doi.org/10.1080/14740338.2020.1713091

Berridge, K. C., & Robinson, T. E. (2003). Parsing reward. *Trends in Neurosciences*, *26*(9), 507–513. https://doi.org/10.1016/S0166-2236(03)00233-9

Bond, G. R., Drake, R. E., & Luciano, A. (2015). Employment and educational outcomes in early intervention programmes for early psychosis: A systematic review. *Epidemiology and Psychiatric Sciences*, *24*(5), 446–457. https://doi.org/10.1017/S2045796014000419

Bucci, S., Berry, K., Barrowclough, C., & Haddock, G. (2016). Family Interventions in Psychosis: A Review of the Evidence and Barriers to Implementation. *Australian Psychologist*, *51*(1), 62–68. https://doi.org/10.1111/ap.12172

Catalan, A., Richter, A., Salazar De Pablo, G., Vaquerizo-Serrano, J., Mancebo, G., Pedruzo, B., Aymerich, C., Solmi, M., González-Torres, M. Á., Gil, P., McGuire, P., & Fusar-Poli, P. (2021). Proportion and predictors of remission and recovery in first-episode psychosis: Systematic review and meta-analysis. *European Psychiatry*, *64*(1), e69. https://doi.org/10.1192/j.eurpsy.2021.2246

Cavelti, M., Kvrgic, S., Beck, E.-M., Kossowsky, J., & Vauth, R. (2012). Assessing recovery from schizophrenia as an individual process. A review of self-report instruments. *European Psychiatry*, *27*(1), 19–32. https://doi.org/10.1016/j.eurpsy.2011.01.007

Cella, M., Tomlin, P., Robotham, D., Green, P., Griffiths, H., Stahl, D., & Valmaggia, L. (2022). Virtual Reality Therapy for the Negative Symptoms of Schizophrenia (V-NeST): A pilot randomised feasibility trial. *Schizophrenia Research*, *248*, 50–57. https://doi.org/10.1016/j.schres.2022.07.013

Correll, C. U., Galling, B., Pawar, A., Krivko, A., Bonetto, C., Ruggeri, M., Craig, T. J., Nordentoft, M., Srihari, V. H., Guloksuz, S., Hui, C. L. M., Chen, E. Y. H., Valencia, M., Juarez, F., Robinson, D. G., Schooler, N. R., Brunette, M. F., Mueser, K. T., Rosenheck, R. A., … Kane, J. M. (2018). Comparison of Early Intervention Services vs Treatment as Usual for Early-Phase Psychosis: A Systematic Review, Meta-analysis, and Meta-regression. *JAMA Psychiatry*, *75*(6), 555. https://doi.org/10.1001/jamapsychiatry.2018.0623

Corrigan, P. W., Salzer, M., Ralph, R. O., Sangster, Y., & Keck, L. (2004). Examining the Factor Structure of the Recovery Assessment Scale. *Schizophrenia Bulletin*, *30*(4), 1035–1041. https://doi.org/10.1093/oxfordjournals.schbul.a007118

Curtis, J., Watkins, A., Rosenbaum, S., Teasdale, S., Kalucy, M., Samaras, K., & Ward, P. B. (2016). Evaluating an individualized lifestyle and life skills intervention to prevent antipsychotic-induced weight gain in first-episode psychosis. *Early Intervention in Psychiatry*, *10*(3), 267–276. https://doi.org/10.1111/eip.12230

Doyle, R., Turner, N., Fanning, F., Brennan, D., Renwick, L., Lawlor, E., & Clarke, M. (2014). First-Episode Psychosis and Disengagement From Treatment: A Systematic Review. *Psychiatric Services*, *65*(5), 603–611. https://doi.org/10.1176/appi.ps.201200570

Dubreucq, J., Gabayet, F., Godin, O., Andre, M., Aouizerate, B., Capdevielle, D., Chereau, I., Clauss-Kobayashi, J., Coulon, N., D'Amato, T., Dorey, J.-M., Dubertret, C., Faraldo, M., Laouamri, H., Leigner, S., Lancon, C., Leboyer, M., Llorca, P.-M., Mallet, J., … Berna, F. (2022). Overlap and Mutual Distinctions Between Clinical Recovery and Personal Recovery in People With Schizophrenia in a One-Year Study. *Schizophrenia Bulletin*, *48*(2), 382–394. https://doi.org/10.1093/schbul/sbab114

Faerden, A., Friis, S., Agartz, I., Barrett, E. A., Nesvåg, R., Finset, A., & Melle, I. (2009). Apathy and Functioning in First-Episode Psychosis. *Psychiatric Services*, *60*(11), 1495–1503. https://doi.org/10.1176/ps.2009.60.11.1495

Feng, Y.-S., Kohlmann, T., Janssen, M. F., & Buchholz, I. (2021). Psychometric properties of the EQ-5D-5L: A systematic review of the literature. *Quality of Life Research*, *30*(3), 647–673. https://doi.org/10.1007/s11136-020-02688-y

Ferguson, H. J., Brunsdon, V. E. A., & Bradford, E. E. F. (2021). The developmental trajectories of executive function from adolescence to old age. *Scientific Reports*, *11*(1), 1382. https://doi.org/10.1038/s41598-020-80866-1

Firth, J., Carney, R., Elliott, R., French, P., Parker, S., McIntyre, R., McPhee, J. S., & Yung, A. R. (2018). Exercise as an intervention for first-episode psychosis: A feasibility study. *Early Intervention in Psychiatry*, *12*(3), 307–315. https://doi.org/10.1111/eip.12329

Forbes, C., Blanchard, J. J., Bennett, M., Horan, W. P., Kring, A., & Gur, R. (2010). Initial development and preliminary validation of a new negative symptom measure: The Clinical Assessment Interview for Negative Symptoms (CAINS). *Schizophrenia Research*, *124*(1–3), 36–42. https://doi.org/10.1016/j.schres.2010.08.039

Frese, F. J., & Davis, W. W. (1997). The consumer–survivor movement, recovery, and consumer professionals. *Professional Psychology: Research and Practice*, *28*(3), 243–245. https://doi.org/10.1037/0735-7028.28.3.243

Fulford, D., Meyer-Kalos, P. S., & Mueser, K. T. (2020). Focusing on recovery goals improves motivation in first-episode psychosis. *Social Psychiatry and Psychiatric Epidemiology*, *55*(12), 1629–1637. https://doi.org/10.1007/s00127-020-01877-x

Galderisi, S., Mucci, A., Buchanan, R. W., & Arango, C. (2018). Negative symptoms of schizophrenia: New developments and unanswered research questions. *The Lancet Psychiatry*, *5*(8), 664–677. https://doi.org/10.1016/S2215-0366(18)30050-6

Gardner, B., & Lally, P. (2018). Modelling Habit Formation and Its Determinants. In B. Verplanken (Ed.), *The Psychology of Habit* (pp. 207–229). Springer International Publishing. https://doi.org/10.1007/978-3-319-97529-0_12

Gee, B., Hodgekins, J., Fowler, D., Marshall, M., Everard, L., Lester, H., Jones, P. B., Amos, T., P. Singh, S., Sharma, V., Freemantle, N., & Birchwood, M. (2016). The course of negative symptom in first episode psychosis and the relationship with social recovery. *Schizophrenia Research*, *174*(1–3), 165–171. https://doi.org/10.1016/j.schres.2016.04.017

Goldman, H. H., Skodol, A. E., & Lave, T. R. (1992). Revising axis V for DSM-IV: A review of measures of social functioning. *American Journal of Psychiatry*, *149*(9), 1148–1156. https://doi.org/10.1176/ajp.149.9.1148

Green, M. F., Hellemann, G., Horan, W. P., Lee, J., & Wynn, J. K. (2012). From Perception to Functional Outcome in Schizophrenia: Modeling the Role of Ability and Motivation. *Archives of General Psychiatry*, *69*(12), 1216. https://doi.org/10.1001/archgenpsychiatry.2012.652

Greenwood, K. E., Sweeney, A., Williams, S., Garety, P., Kuipers, E., Scott, J., & Peters, E. (2010). CHoice of Outcome In Cbt for psychosEs (CHOICE): The Development of a New Service User–Led Outcome Measure of CBT for Psychosis. *Schizophrenia Bulletin*, *36*(1), 126–135. https://doi.org/10.1093/schbul/sbp117

Harvey, P. D., & Bellack, A. S. (2009). Toward a Terminology for Functional Recovery in Schizophrenia: Is Functional Remission a Viable Concept? *Schizophrenia Bulletin*, *35*(2), 300–306. https://doi.org/10.1093/schbul/sbn171

Herdman, M., Gudex, C., Lloyd, A., Janssen, Mf., Kind, P., Parkin, D., Bonsel, G., & Badia, X. (2011). Development and preliminary testing of the new five-level version of EQ-5D (EQ-5D-

5L). *Quality of Life Research*, *20*(10), 1727–1736. https://doi.org/10.1007/s11136-011-9903-x

Horan, W. P., Kring, A. M., Gur, R. E., Reise, S. P., & Blanchard, J. J. (2011). Development and psychometric validation of the Clinical Assessment Interview for Negative Symptoms (CAINS). *Schizophrenia Research*, *132*(2–3), 140–145. https://doi.org/10.1016/j.schres.2011.06.030

Hurn, J., Kneebone, I., & Cropley, M. (2006). Goal setting as an outcome measure: A systematic review. *Clinical Rehabilitation*, *20*(9), 756–772. https://doi.org/10.1177/0269215506070793

Islam, Z., Rabiee, F., & Singh, S. P. (2015). Black and Minority Ethnic Groups' Perception and Experience of Early Intervention in Psychosis Services in the United Kingdom. *Journal of Cross-Cultural Psychology*, *46*(5), 737–753. https://doi.org/10.1177/0022022115575737

Iyer, S. N., Mangala, R., Anitha, J., Thara, R., & Malla, A. K. (2011). An examination of patient-identified goals for treatment in a first-episode programme in Chennai, India: First-episode psychosis: patient goals. *Early Intervention in Psychiatry*, *5*(4), 360–365. https://doi.org/10.1111/j.1751-7893.2011.00289.x

Jaiswal, A., Carmichael, K., Gupta, S., Siemens, T., Crowley, P., Carlsson, A., Unsworth, G., Landry, T., & Brown, N. (2020). Essential Elements That Contribute to the Recovery of Persons With Severe Mental Illness: A Systematic Scoping Study. *Frontiers in Psychiatry*, *11*, 586230. https://doi.org/10.3389/fpsyt.2020.586230

Jones, R. M., Hansen, L., Moskvina, V., Kingdon, D., & Turkington, D. (2010). The relationship between self-esteem and psychotic symptoms in schizophrenia: A longitudinal study. *Psychosis*, *2*(3), 218–226. https://doi.org/10.1080/17522431003602430

Jose, D., Lalitha, K., Gandhi, S., Desai, G., & Nagarajaiah. (2015). Consumer perspectives on the concept of recovery in schizophrenia: A systematic review. *Asian Journal of Psychiatry*, *14*, 13–18. https://doi.org/10.1016/j.ajp.2015.01.006

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, *86*(1), 80–92. https://doi.org/10.1037/0021-9010.86.1.80

Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology*, *83*(3), 693–710. https://doi.org/10.1037/0022-3514.83.3.693

Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The Positive and Negative Syndrome Scale (PANSS) for Schizophrenia. *Schizophrenia Bulletin*, *13*(2), 261–276. https://doi.org/10.1093/schbul/13.2.261

Kay, S. R., Opler, L. A., & Lindenmayer, J. P. (1988). Reliability and validity of the positive and negative syndrome scale for schizophrenics. *Psychiatry Research*, *23*(1), 99–110. https://doi.org/10.1016/0165-1781(88)90038-8

Keogh, B., Murphy, E., Doyle, L., Sheaf, G., Watts, M., & Higgins, A. (2022). Mental health service users experiences of medication discontinuation: A systematic review of qualitative studies. *Journal of Mental Health*, *31*(2), 227–238. https://doi.org/10.1080/09638237.2021.1922644

Kiresuk, T. J., & Sherman, R. E. (1968). Goal attainment scaling: A general method for evaluating comprehensive community mental health programs. *Community Mental Health Journal*, *4*(6), 443–453. https://doi.org/10.1007/BF01530764

Kleinman, A. (1980). *Patients and healers in the context of culture: An exploration of the borderland between anthropology, medicine, and psychiatry*. University of California Press.

Kring, A. M., & Barch, D. M. (2014). The motivation and pleasure dimension of negative symptoms: Neural substrates and behavioral outputs. *European Neuropsychopharmacology*, *24*(5), 725–736. https://doi.org/10.1016/j.euroneuro.2013.06.007

Kring, A. M., Gur, R. E., Blanchard, J. J., Horan, W. P., & Reise, S. P. (2013). The Clinical Assessment Interview for Negative Symptoms (CAINS): Final Development and Validation. *American Journal of Psychiatry*, *170*(2), 165–172. https://doi.org/10.1176/appi.ajp.2012.12010109

Lally, J., Ajnakina, O., Stubbs, B., Cullinane, M., Murphy, K. C., Gaughran, F., & Murray, R. M. (2017). Remission and recovery from first-episode psychosis in adults: Systematic review and meta-analysis of long-term outcome studies. *British Journal of Psychiatry*, *211*(6), 350–358. https://doi.org/10.1192/bjp.bp.117.201475

Lee, C. E., Shogren, K. A., Segal, J., Pezzimenti, F., Aleman-Tovar, J., & Taylor, J. L. (2022). Goal attainment scaling—community-based: A method to incorporate personalized outcomes into intervention research with youth and adults on the autism spectrum. *Autism*, *26*(1), 178–187. https://doi.org/10.1177/13623613211024492

Lemos-Giráldez, S., García-Alvarez, L., Paino, M., Fonseca-Pedrero, E., Vallina-Fernández, O., Vallejo-Seco, G., Fernández-Iglesias, P., Ordóñez-Camblor, N., Solares-Vázquez, J., Mas-Expósito, L., Barajas, A., & Andresen, R. (2015). Measuring stages of recovery from psychosis. *Comprehensive Psychiatry*, *56*, 51–58. https://doi.org/10.1016/j.comppsych.2014.09.021

Logan, B., Jegatheesan, D., Viecelli, A., Pascoe, E., & Hubbard, R. (2022). Goal attainment scaling as an outcome measure for randomised controlled trials: A scoping review. *BMJ Open*, *12*(7), e063061. https://doi.org/10.1136/bmjopen-2022-063061

Marder, S. R., & Galderisi, S. (2017). The current conceptualization of negative symptoms in schizophrenia. *World Psychiatry*, *16*(1), 14–24. https://doi.org/10.1002/wps.20385

Marquez, D. X., Aguiñaga, S., Vásquez, P. M., Conroy, D. E., Erickson, K. I., Hillman, C., Stillman, C. M., Ballard, R. M., Sheppard, B. B., Petruzzello, S. J., King, A. C., & Powell, K. E. (2020). A systematic review of physical activity and quality of life and well-being. *Translational Behavioral Medicine*, *10*(5), 1098–1109. https://doi.org/10.1093/tbm/ibz198

Mausbach, B. T., Moore, R., Bowie, C., Cardenas, V., & Patterson, T. L. (2009). A Review of Instruments for Measuring Functional Recovery in Those Diagnosed With Psychosis. *Schizophrenia Bulletin*, *35*(2), 307–318. https://doi.org/10.1093/schbul/sbn152

Monteiro, R. P., Coelho, G. L. D. H., Hanel, P. H. P., De Medeiros, E. D., & Da Silva, P. D. G. (2022). The Efficient Assessment of Self-Esteem: Proposing the Brief Rosenberg Self-Esteem Scale. *Applied Research in Quality of Life*, *17*(2), 931–947. https://doi.org/10.1007/s11482-021-09936-4

Morosini, P. L., Magliano, L., Brambilla, L., Ugolini, S., & Pioli, R. (2000). Development, reliability and acceptability of a new version of the DSM-IV Social and Occupational Functioning Assessment Scale (SOFAS) to assess routine social funtioning. *Acta Psychiatrica Scandinavica*, *101*(4), 323–329. https://doi.org/10.1034/j.1600-0447.2000.101004323.x

Neil, S. T., Kilbride, M., Pitt, L., Nothard, S., Welford, M., Sellwood, W., & Morrison, A. P. (2009). The questionnaire about the process of recovery (QPR): A measurement tool developed in collaboration with service users. *Psychosis*, *1*(2), 145–155. https://doi.org/10.1080/17522430902913450

Palmier-Claus, J., Dunn, G., Drake, R., & Lewis, S. (2011). The negative and positive self: A longitudinal study examining self-esteem, paranoia and negative symptoms in individuals with first-episode psychosis: The negative and positive self. *Early Intervention in Psychiatry*, *5*(2), 150–155. https://doi.org/10.1111/j.1751-7893.2010.00250.x

Pedley, R., Lovell, K., Bee, P., Bradshaw, T., Gellatly, J., Ward, K., Woodham, A., & Wearden, A. (2018). Collaborative, individualised lifestyle interventions are acceptable to people with first episode psychosis; a qualitative study. *BMC Psychiatry*, *18*(1), 111. https://doi.org/10.1186/s12888-018-1692-0

Peralta, V., & Cuesta, M. J. (1994). Psychometric properties of the Positive and Negative Syndrome Scale (PANSS) in schizophrenia. *Psychiatry Research*, *53*(1), 31–40. https://doi.org/10.1016/0165-1781(94)90093-0

Pérez-Iglesias, R., Martínez-García, O., Pardo-Garcia, G., Amado, J. A., Garcia-Unzueta, M. T., Tabares-Seisdedos, R., & Crespo-Facorro, B. (2014). Course of weight gain and metabolic abnormalities in first treated episode of psychosis: The first year is a critical period for development of cardiovascular risk factors. *The International Journal of Neuropsychopharmacology*, *17*(01), 41–51. https://doi.org/10.1017/S1461145713001053

Phahladira, L., Luckhoff, H. K., Asmal, L., Kilian, S., Scheffler, F., Plessis, S. D., Chiliza, B., & Emsley, R. (2020). Early recovery in the first 24 months of treatment in first-episode schizophrenia-spectrum disorders. *Npj Schizophrenia*, *6*(1), 2. https://doi.org/10.1038/s41537-019-0091-y

Pillny, M., Schlier, B., & Lincoln, T. M. (2020). “I just don’t look forward to anything”. How anticipatory pleasure and negative beliefs contribute to goal-directed activity in patients with negative symptoms of psychosis. *Schizophrenia Research*, *222*, 429–436. https://doi.org/10.1016/j.schres.2020.03.059

Pitkänen, A., Välimäki, M., Endicott, J., Katajisto, J., Luukkaala, T., Koivunen, M., Kuosmanen, L., & Hätönen, H. (2012). Assessing quality of life in patients with schizophrenia in an acute psychiatric setting: Reliability, validity and feasibility of the EQ-5D and the Q-LES-Q. *Nordic Journal of Psychiatry*, *66*(1), 19–25. https://doi.org/10.3109/08039488.2011.593099

Ponce-Correa, F., Caqueo-Urízar, A., Berrios, R., & Escobar-Soler, C. (2023). Defining recovery in schizophrenia: A review of outcome studies. *Psychiatry Research*, *322*, 115134. https://doi.org/10.1016/j.psychres.2023.115134

Prieto, L., Sacristán, J. A., Hormaechea, J. A., Casado, A., Badia, X., & Gómez, J. C. (2004). Psychometric validation of a generic health-related quality of life measure (EQ-5D) in a sample of schizophrenic patients. *Current Medical Research and Opinion*, *20*(6), 827–835. https://doi.org/10.1185/030079904125003674

Ramsay, C. E., Broussard, B., Goulding, S. M., Cristofaro, S., Hall, D., Kaslow, N. J., Killackey, E., Penn, D., & Compton, M. T. (2011). Life and treatment goals of individuals hospitalized for first-episode nonaffective psychosis. *Psychiatry Research*, *189*(3), 344–348. https://doi.org/10.1016/j.psychres.2011.05.039

Riley, E. M., McGovern, D., Mockler, D., Doku, V. C. K., ÓCeallaigh, S., Fannon, D. G., Tennakoon, L., Santamaria, M., Soni, W., Morris, R. G., & Sharma, T. (2000). Neuropsychological functioning in first-episode psychosis—Evidence of specific deficits. *Schizophrenia Research*, *43*(1), 47–55. https://doi.org/10.1016/S0920-9964(99)00177-2

Robinson, D. G., Woerner, M. G., McMeniman, M., Mendelowitz, A., & Bilder, R. M. (2004). Symptomatic and Functional Recovery From a First Episode of Schizophrenia or Schizoaffective Disorder. *American Journal of Psychiatry*, *161*(3), 473–479. https://doi.org/10.1176/appi.ajp.161.3.473

Roosenschoon, B.-J., Kamperman, A. M., Deen, M. L., Weeghel, J. V., & Mulder, C. L. (2019). Determinants of clinical, functional and personal recovery for people with schizophrenia and other severe mental illnesses: A cross-sectional analysis. *PLOS ONE*, *14*(9), e0222378. https://doi.org/10.1371/journal.pone.0222378

Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton University Press.

Santesteban-Echarri, O., Paino, M., Rice, S., González-Blanch, C., McGorry, P., Gleeson, J., & Alvarez-Jimenez, M. (2017). Predictors of functional recovery in first-episode psychosis: A systematic review and meta-analysis of longitudinal studies. *Clinical Psychology Review*, *58*, 59–75. https://doi.org/10.1016/j.cpr.2017.09.007

Silverstein, S. M., & Bellack, A. S. (2008). A scientific agenda for the concept of recovery as it applies to schizophrenia. *Clinical Psychology Review*, *28*(7), 1108–1124. https://doi.org/10.1016/j.cpr.2008.03.004

Singh, S. P., Brown, L., Winsper, C., Gajwani, R., Islam, Z., Jasani, R., Parsons, H., Rabbie-Khan, F., & Birchwood, M. (2015). Ethnicity and pathways to care during first episode psychosis: The role of cultural illness attributions. *BMC Psychiatry*, *15*(1), 287. https://doi.org/10.1186/s12888-015-0665-9

Slade, M., Amering, M., & Oades, L. (2008). Recovery: An international perspective. *Epidemiologia e Psichiatria Sociale*, *17*(2), 128–137. https://doi.org/10.1017/S1121189X00002827

Stata Corp. (2023). *Stata Statistical Software: Release 18.* (Version 18) [Stata].

Strauss, G. P., & Cohen, A. S. (2017). A Transdiagnostic Review of Negative Symptom Phenomenology and Etiology. *Schizophrenia Bulletin*, *43*(4), 712–719. https://doi.org/10.1093/schbul/sbx066

Temesgen, W. A., Chien, W. T., & Bressington, D. (2019). Conceptualizations of subjective recovery from recent onset psychosis and its associated factors: A systematic review. *Early Intervention in Psychiatry*, *13*(2), 181–193. https://doi.org/10.1111/eip.12698

Thonon, B., Van Aubel, E., Lafit, G., Della Libera, C., & Larøi, F. (2020). Idiographic analyses of motivation and related processes in participants with schizophrenia following a therapeutic intervention for negative symptoms. *BMC Psychiatry*, *20*(1), 464. https://doi.org/10.1186/s12888-020-02824-5

Urach, S., Gaasterland, C., Posch, M., Jilma, B., Roes, K., Rosenkranz, G., Van Der Lee, J., & Ristl, R. (2019). Statistical analysis of Goal Attainment Scaling endpoints in randomised trials. *Statistical Methods in Medical Research*, *28*(6), 1893–1910. https://doi.org/10.1177/0962280218777896

Windell, D., Norman, R., & Malla, A. K. (2012). The Personal Meaning of Recovery Among Individuals Treated for a First Episode of Psychosis. *Psychiatric Services*, *63*(6), 548–553. https://doi.org/10.1176/appi.ps.201100424

Wood, L., & Alsawy, S. (2018). Recovery in Psychosis from a Service User Perspective: A Systematic Review and Thematic Synthesis of Current Qualitative Evidence. *Community Mental Health Journal*, *54*(6), 793–804. https://doi.org/10.1007/s10597-017-0185-9

Wykes, T., Joyce, E., Velikonja, T., Watson, A., Aarons, G., Birchwood, M., Cella, M., Dopson, S., Fowler, D., Greenwood, K., Johnson, S., McCrone, P., Perez, J., Pickles, A., Reeder, C., Rose, D., Singh, S., Stringer, D., Taylor, M., … Upthegrove, R. (2018). The CIRCuiTS study (Implementation of cognitive remediation in early intervention services): Protocol for a randomised controlled trial. *Trials*, *19*(1), 183. https://doi.org/10.1186/s13063-018-2553-3

Wykes, T., Stringer, D., Boadu, J., Tinch-Taylor, R., Csipke, E., Cella, M., Pickles, A., McCrone, P., Reeder, C., Birchwood, M., Fowler, D., Greenwood, K., Johnson, S., Perez, J., Ritunnano, R., Thompson, A., Upthegrove, R., Wilson, J., Kenny, A., … Joyce, E. M. (2023). Cognitive Remediation Works But How Should We Provide It? An Adaptive Randomized Controlled Trial of Delivery Methods Using a Patient Nominated Recovery Outcome in First-Episode Participants. *Schizophrenia Bulletin*, *49*(3), 614–625. https://doi.org/10.1093/schbul/sbac214

Appendix A. Inclusion and exclusion criteria for goal categories

Employment	Goals related to seeking voluntary or paid employment. Goals related to getting promoted in or improving performance in a current role (e.g. getting to work on time, concentrating while at work). • Includes goals related to improving relationships with colleagues. • Includes educational or vocational courses (e.g. plumbing, hairdressing) that involve work placement. • Excludes goals related to engaging in creative hobbies (e.g. coding, tattooing, photography, playing a musical instrument). These should be categorised under Leisure & Hobbies unless the activity is explicitly linked to employment or volunteering.
Education	Goals related to seeking participation in any type of formal education or obtaining an educational qualification (e.g. A Levels, college qualifications, university degrees) or any other educational course. Goals related to improving performance in an educational setting (e.g. reviewing lectures, completing coursework, studying). • Excludes goals referencing vocational courses (e.g. plumbing, hairdressing), these goals should be categorised under Employment. • Excludes goals related to engaging in creative hobbies (e.g. coding, tattooing, photography, playing a musical instrument). These goals should be categorised under Leisure & Hobbies, unless the goal is explicitly linked to an educational qualification. • Excludes any reference to reading. These should be categorised under Leisure & Hobbies unless this is referred to in relation to an educational qualification (e.g. reading for university seminars). • Excludes goals related to independent learning (e.g. reading about a subject such as history, coding, learning a language via an app). These should be coded under Leisure & Hobbies, unless this is referred to in relation to an educational qualification (e.g. attending a coding course).
Health & wellbeing	Any goal related to improving physical health or mental wellbeing by increasing daily movement, improving the nutritional content of diet, losing weight, improving sleep, reducing or stopping substance misuse, or improving emotional or mental wellbeing through regular practices such as meditation. • Excludes goals related to using organisational skills to take medication and attend appointments independently or consistently, these should be categorised under day-to-day life skills. • Excludes goals which reference socialising or spending time with friends as the primary aim (e.g. spend time with sister at a weekly fitness class), these should be categorised under relationships.

	- Excludes goals which relate to cooking that explicitly mention using cognitive abilities to do so, rather than improving diet. These goals should be categorised under Day-to-day life skills.
Relationships	Any goal related to spending time with or improving relationships with family members or friends, including text messages and phone calls. Any goal related to meeting new people, or improving social skills (e.g. remembering names, focusing on conversations). - Includes goals which mention engaging in an activity that will likely improve health and wellbeing, where socializing is implied to be the primary motivation for the activity (e.g. going to a weekly dance class to meet new people). If socializing is not implied as the primary motivation (e.g. play football once a week), these goals should be categorised under Health & Wellbeing. - Includes goals which mention engaging in a recreational activity or hobby, where socializing is implied to be the primary motivation for the activity (e.g. joining an art class to meet new people). If socializing is not implied as the primary motivation (e.g. join a weekly art class), these goals should be categorised under Leisure & Hobbies. - Excludes goals related to improving relationships with colleagues, these should be categorised under Employment.
Leisure & hobbies	Any goal related to engagement in an activity which is considered by the rater to a hobby, recreational activity, creative pursuit, or form of independent learning or self-improvement in the absence of an educational qualification (e.g. reading fiction or non-fiction, coding, tattooing, photography, using a language app, practising a musical instrument). - Includes attendance at unspecified events unless the stated goal is to spend time with people or meet people. In this case, the goal should be categorised under Relationships, unless the event is explicitly linked to employment, education, or health, in which case it should be categorised under Employment, Education, or Health & Wellbeing. - Includes goals which mention attending events, or engaging in a recreational activity or hobby, where there may be social interaction/social interaction is referenced, but socializing isn’t stated as the primary motivation for the activity (e.g. go to a language class every week). If socializing is implied to be the primary motivation (e.g. join a weekly art class to meet new people, spending time with a friend at a music event), these goals should be categorised under Relationships. - Includes goals where wording suggests the focus is on increasing engagement in activities even if cognitive functions are mentioned (e.g. concentrate on reading).

	- Excludes goals related to improving cooking skills unless evidently recreational and not likely to be carried out with the purpose of improving health (e.g. making a cake with a friend). These goals should be categorised under Leisure & Hobbies.
Day-to-day life skills	Goals related to managing the day-to-day elements of life. This could be planning and organisational skills, remembering appointments, establishing routine, administrative tasks, directly improving cognitive abilities, using public transport, managing finances, domestic chores, or the development of skills that cannot be conceptualised as a hobby and are not related to health, relationships, education or employment. • Includes goals related to independently or consistently taking medication or attending appointments. • Includes goals where wording suggests the focus is on improving cognitive functioning even if the activity in question might be considered to fit better into Leisure & Hobbies (e.g. Improving concentration by reading 30 minutes a day). • Includes shopping unless this is specified as recreational (e.g. shopping for clothes or luxury items). • Excludes goals related to improving the participant’s financial situation through employment, rather than saving or budgeting. These goals should be categorised under Employment.
Miscellaneous	Any goal which the rater is unable to fit into a category.
Unclear	Any goal that is unintelligible to the rater.

Appendix B. Inclusion and exclusion criteria for goal sub-categories

Employment	• **Seeking employment** - Goals related to seeking voluntary or paid employment. • **Current employment** - Goals related to getting promoted in a current role or improving performance in a current role.
Education	• **Seeking education** - Goals related to seeking participation in any type of formal education or obtaining an educational qualification (e.g. A Levels, college qualifications, university degrees) or any other educational course. • **Current education** - Goals related to improving performance in an educational setting (e.g. attending lectures, completing coursework, studying, revising).
Health & wellbeing	• **Improving diet** - Any goal related to monitoring food intake to improve nutritional content of diet, or to aid with weight loss (e.g. making or eating home-cooked meals, consuming more vegetables, consuming fewer take aways, consuming less fast food). • **Exercise -** Any goal related to increasing movement, either with the aim of improving physical or mental health, changing body composition, or aiding with weight loss. Includes walking more, and any other form of exercise. • **Substances** - Any goal related to stopping or reducing the use of substances to improve health and wellbeing. This includes smoking, drinking alcohol, and using drugs. • **Sleep** - Any goal related to sleeping earlier, longer, or going to sleep or waking up at regular times. • **Emotional wellbeing –** Any goal related to improving emotional wellbeing that doesn’t fall into the other subcategories (e.g. meditation, gratitude practices, controlling anger).
Relationships	• **Family -** Any goal related to spending time with or improving relationships with specified family members (e.g. mum, sister). • **Friends** - Any goal related to spending time with other people or improving relationships with friends, including text messaging and phone calls. Includes any goal related to relationships that specifies the name of a person without any indication of their relationship to the participant. • **Expanding social network** - Any goal related to meeting new people, or generally socialising more frequently without reference to friends or family. • **Improving social skills** – Any goal related to improving social skills (e.g. remembering names, focusing on conversations).
Leisure & hobbies	• **Seeking activities** – Any goal related to seeking out events, or finding new hobbies and leisure activities, without engaging in the activities themselves (e.g. searching the internet for events or ideas).

	• **Reading** – Any goal related to reading more regularly or consistently. Can be fiction, or non-fiction about a specified topic (e.g. history) unless this is specifically related to an educational qualification (e.g. reading for seminars). • **Creative pursuits** – Any goal related to practising, learning, or playing an instrument. Any goal related to singing individually or in a choir, or DJing. Any goal related to creating art, including tattoos, or spending time writing not in service of an educational qualification. • **Independent learning** – Any goal related to learning a skill that is cannot be better categorised under Day-to-day life skills (e.g. learning a language, learning to code). • **Games** – Any goal related to playing games or learning a game. Includes video games and board games (e.g. chess). • **Consuming media** – Any goal which relates to consuming a form of media (e.g. TV, film, music, radio). Includes attending music events. Excludes reading due to the size of this category.
Day-to-day life skills	• **Medication & appointments** – Goals related to taking medication and attending appointments (e.g. take medication every day without reminder, attending healthcare appointments). • **Routine & activity** – Goals related to maintaining or establish a daily or weekly routine or schedule (e.g. getting up in the morning, leaving the house in a specific timeframe), including with the use of reminders, calendars, or to do lists. Goals related to increasing engagement in activities that are non-specific (i.e. do not fall into the category of Leisure & Hobbies, Employment, Education, Relationships, or Health & Wellbeing), including with the use of reminders, calendars, or to do lists. • **Household chores** – Goals related to managing domestic chores (e.g. cleaning, keeping things tidy, organising possessions, grocery shopping). • **Cognitive abilities** - Goals related to improving cognitive ability in general, in the absence of reference to a specified activity, including goals that refer to using strategies to improve cognitive ability (e.g. memory). • **Managing finances** – Goals related to financial planning, budgeting or saving money. • **Transportation** - Goals related to increasing use of public transport, learning to drive, or studying for a theory test. • **Skill building** – Goals related to the development of skills that are used by most people in daily life, cannot be conceptualised as a hobby or leisure activity, and are not explicitly related to health, relationships, education or employment (e.g. basic literacy, following the steps in a recipe, practising typing).

Appendix C. Imputation of data for single data points

CAINS

Data was imputed for the motivation and pleasure scale separately, by taking the mean of the other values on the scale. Data was marked as missing where there more than 33% of items in a scale were present. There was missing data for two participants on the expression scale, and these were marked as missing. Two participants had missing data for 22% to 33% of the items on the motivation and pleasure scale, and the data was imputed by taking the mean of the values for the other items.

PANSS

Data was imputed for positive symptoms and general psychopathology scales separately, by taking the mean of the other values on the scale. Data was marked as missing where there mor than 33% of items in a scale were present. PANSS data was imputed for two participants on the positive symptom scale, the mean number of missing items was 1.5 (21.4%). PANSS data was imputed for three participants on the general psychopathology scale, the mean number of missing items was 1.3 (8.1%).

EQ-5D-5L

Data was imputed on the EQ-5D-5L for two participants, for whom one of the five items (20%) was missing, the data was imputed by taking the mean of the values for the other items.

Rosenberg Self-Esteem Scale

Where fewer than 33% of items were missing, data were imputed by taking the mean of the other items on the scale. Data was imputed for 12 participants, and 92% of these participants had only 10% of items missing. One participant had 30% of data missing.

Appendix D. Descriptive statistics for the third goal

Supplementary Table 1. Mean scores and percentages within goal categories for third goal

	Day-to-Day Life Skills	Employment & Education	Health & Wellbeing	Relationships	Leisure & Hobbies
N (%) [†]					
Male	40 (29.2%)	20 (14.6%)	26 (19.0%)	19 (13.9%)	32 (23.4%)
Female	18 (31.6%)	10 (17.5%)	10 (17.5%)	11 (19.3%)	8 (14.0%)
White	28 (26.4%)	17 (16.0%)	19 (17.9%)	17 (16.0%)	25 (23.6%)
Black	18 (35.2%)	7 (13.7%)	9 (17.7%)	7 (13.7%)	10 (19.6%)
Asian	8 (38.1%)	3 (14.3%)	4 (19.1%)	4 (19.1%)	2 (9.5%)
Other/mixed	4 (25.0%)	3 (18.8%)	4 (25.0%)	2 (12.5%)	2 (18.8%)
M (SD)					
Age	26.7 (6.6)	23.4 (4.5)	26.7 (6.0)	25.2 (5.2)	27.8 (6.4)
CAINS MAP (0-36)	15.2 (6.4)	13.7 (7.4)	12.8 (6.4)	15.8 (6.9)	13.7 (7.6)
CAINS EXP (0-16)	2.8 (3.0)	3.6 (4.1)	3.0 (3.8)	3.3 (3.6)	4.1 (4.5)
PANSS Positive (7-49)	13.9 (4.7)	12.5 (5.4)	12.8 (6.0)	12.5 (5.0)	12.2 (5.7)
PANSS General (16-112)	31.3 (8.2)	28.0 (8.2)	28.7 (7.1)	29.9 (7.4)	28.8 (8.3)
SOFAS (0-100)	59.3 (13.9)	65.1 (14.3)	67.4 (14.9)	61.8 (14.2)	63.2 (14.1)
EQ-5D-5L (5-25)	8.8 (3.1)	8.6 (3.7)	8.3 (2.8)	8.7 (3.0)	8.4 (2.9)
RSE (10-40)	16.7 (6.3)	16.9 (5.3)	17.5 (5.2)	16.1 (5.6)	16.6 (5.6)

Abbreviations: M, Mean. SD, Standard Deviation. CAINS, Clinical Assessment Interview for Negative Symptoms. MAP, Motivation & Pleasure. EXP, Expression. PANNS, The Positive and Negative Syndrome Scale. SOFAS, Social and Occupational Functioning Assessment Scale. EQ-5D-5L, Health-related quality of life questionnaire. RSE, Rosenberg Self-esteem Scale.

[†] Percentage of third goals.