Bachelor Thesis

Which Psychological Interventions Enhance Personal Recovery in Individuals Suffering from Serious Mental Illness? A Systematic Review

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Content

Abstract

Background. Personal recovery is considered a growingly important outcome for individuals suffering from serious mental illness (SMI). However, little is known about the effect of personal recovery interventions in individuals suffering from serious mental illness (SMI).

Objective. This systematic review had the aim to provide an overview of the characteristics, effectiveness, and quality of personal recovery interventions.

Method. The databases PubMed, PsycInfo, and Web of science were searched. Included articles entailed randomized controlled trials (RCTs), self-report personal recovery measures, participants diagnosed with a serious mental illness (SMI), and a publication date between 2010- 2020. Data was extracted for sample-, intervention-, and methodological characteristics, effectiveness, and quality of the included studies. Quality was decided via the Joanna Briggs Institute Critical Appraisal tool that served as a checklist for randomized controlled trials (RCTs).

Results. Ten studies were included, with nine studies showing an equal distribution in sample size and gender between the control and intervention groups. All studies were conducted in group format with guidance from either therapists (n= 6), specialists of the topic (n=2), or mental health consuming peers (n=2). Five from the ten studies that were educational and included peer support, demonstrated a positive significant effect on personal recovery. This applied for the Recovery Workbook program and E-IMR in the short-term and for the Journey towards Happier Life, BRIDGES, and WRAP interventions in the long-term.

Conclusions. Positive significant effects were found in personal recovery interventions aiming at peer support and education. Peer support helped the clients to share their experiences and education helped the clients to gain more knowledge of their illness, new coping skills, and to set goals by the clients themselves. A clinical implication is that recovery can be improved by not focusing on clinical outcomes, but on enabling clients to improve their belief in oneself, increase their level of hope, build social relationships, achieve their personal goals, and being able to self-manage their illness. Limitations of this review were that the literature search was conducted by one person, only articles published between 2010 and 2020 were included, and only randomized controlled trials (RCTs) were included. Future research, in which two people conduct the literature search, with multiple designs, and a wider timespan, might investigate the effectiveness of personal recovery interventions more elaborately.

Introduction

Serious Mental Illnesses (SMI)

Each year, the number of people suffering from a serious mental illness (SMI) is increasing on a worldwide level. The World Health Organization (WHO) estimate the lifetime prevalence of mental illnesses to be 18.1- 36.1 per cent, causing that, globally, mental illnesses are seen as an important matter (Kessler et al., 2009). Delespaul (2013) defines SMI as: 'A psychiatric disorder with severe functional problems, where the constraints are causal and consequential and which is not temporarily (>2 years), and there is a need for coordinated professional care.' Similarly, Rochefort (1989) describes severe mental illnesses as 'severe, persistent and dysfunctional.' Examples of SMIs are schizophrenia, Post-Traumatic Stress Disorder, Major Depressive Disorder and Bipolar Disorder (Delespaul, 2013; Fried et al., 2017). These disorders can exist in different ways, such as psychoses, neuroses or psychosomatic traits since mental functions can be impaired in various forms (Felix, 1957; Fried et al., 2017).

There is no general agreement on what causes a particular SMI since biological (genes), environmental (social-economic status) and social (relationships) factors are influential in the existence of an SMI (Fried et al., 2017; Topor, 2001). However, SMIs appear to be more prevalent in adolescents and younger adults compared with older adults (Westerhof & Keyes, 2010). Furthermore, there is also no best-recommended treatment plan for a particular SMI because the people suffering from an SMI are a heterogeneous group of people with each of them having various and distinctive demands (Mirabi, 2012; Topor, 2001). Therefore, remedy complaints can be quite a challenge, since these can differ a lot per individual (Mirabi, 2012). This leads to diverse treatment plans for every individual (Mirabi, 2012). Moreover, SMI's are seen as disorders with the highest morbidity rates and each year

more than one-third of the European population experiences an SMI (Westerhof & Keyes, 2010; Wittchen et al., 2011).

The burden of Serious Mental Illnesses

An SMI has multiple impacts on the client, such as a decreased level of self-esteem, becoming isolated from relatives and friends, being unable to go to school and graduate, being unable to work what might lead to financial issues, and being presented to stigma (Lloyd, Waghorn, & Williams, 2008). However, the longer the duration of the mental illness, the greater the influences of these impacts are on a client's life. This means that the clients with SMI suffer from these impacts on a great extent, causing a lot of distress (Lehman, 1996; Lloyd et al., 2008). Moreover, the clients oftentimes experience a low quality of life since their diagnosis is likely to be comorbid with other mental illnesses, e.g., anxiety disorders, unipolar depression or bipolar depression (Deligianni, Vikelis, & Mitsikostas, 2012).

Individuals affected by SMI are suffering from a death rate that is 2.22 times higher than the death rate of individuals without a severe mental disorder (Walker, McGee, & Druss, 2015). Moreover, individuals suffering from an SMI are estimated to die 25 years sooner than the regular population due to curable pharmaceutical conditions which are created via adjustable risk factors, such as smoking, substance misuse, being overweight, and/or incorrect medical help (Parks, Svendsen, Singer, Foti, & Mauer, 2006). Furthermore, with approximately eight million deaths annually, SMIs are one of the most common causes of death worldwide (Walker et al., 2015). This high death rate might be explained due to ageing: Since the global population becomes older compared with the past, the number of individuals suffering from an SMI is growing as well (Global Burden of Disease Study, 2015).

Besides the clients themselves, their caregivers experience a high amount of burden as well (Aylaz & Yıldız, 2018). This burden arises because the caregivers are often dealing with financial problems since they are unable to work due to a large amount of time they spend on

caring for the client (Möller-Leimkühler & Wiesheu, 2012). These caregivers are usually relatives of the client, e.g., parents, siblings, or children (Aylaz & Yıldız, 2018). The burden that is experienced by caregivers can be decreased by providing them with guidance and to let them know that they are not alone in this process of caregiving so they feel that they are socially supported (Aylaz & Yıldız, 2018).

Personal recovery

For a long time, the concept recovery in mental health was related to diminishing symptoms in clients suffering from an SMI (Psych, Remington, & Lee, 2017). Recovery aims to get back to the state an individual was afore the SMI and is defined as a method of modifying a person's attitudes, abilities, sensations, purposes, values and/ or roles (Anthony, 1993; Xie, 2013). A client is recovered when the psychopathological symptoms have disappeared and psychological well-being is existent (Fava, Ruini, & Belaise, 2007; Ryff, 2014). Psychological wellbeing focuses on optimal functioning regarding individual satisfaction levels and is based on six elements, namely: 'Self-acceptance, purpose in life, autonomy, positive relations with others, environmental mastery and personal growth' (Westerhof & Keyes, 2010). Since individuals suffering from an SMI classify their psychological wellbeing as a criterion for their recovery, increasing one's wellbeing would then mean to increase one's recovery as well (de Vos et al., 2017).

There are multiple forms of recovery, such as *clinical, social, functional and personal recovery* (Lloyd et al., 2008). Clinical recovery is about the reduction of pathological symptoms and learning how to deal with the mental disorder together with a psychologist (Lloyd et al., 2008). Social recovery is about getting reintegrated into society again by building on the client's social network (Lloyd et al., 2008). Functional recovery is about being able to perform daily tasks again by providing the client with knowledge, skills and unconditional regard to achieve these goals, and personal recovery has been described as

living a fulfilling and meaningful life despite the disadvantages experienced due to the mental illness (Anthony, 1993; Lloyd et al., 2008).

In SMI, especially *personal recovery* is receiving increased interest. To conceptualize what personal recovery for individuals with mental illnesses means, Leamy, Bird, Le Boutillier, Williams, and Slade (2011) systematically reviewed the literature for models of personal recovery. From the 5208 identified papers, 97 papers were included in the final synthesis (Leamy et al., 2011). Based on these papers, they designed a conceptual framework regarding personal recovery that identified three clusters: traits of the recovery course, recovery processes and recovery levels. Traits of the recovery course were measured in all the included studies but are ranging in frequency. There were thirteen main traits and Leamy et al. (2011) identified them as: 'Recovery is an active process, individual and unique process, non-linear process, recovery as a journey, recovery as stages or phases, recovery as a struggle, multidimensional process, recovery is a gradual process, recovery as a life-changing experience, recovery without a cure, recovery is aided by a supportive and healing environment, recovery can occur without professional intervention, trial and error process.'

Furthermore, Leamy et al. (2011) identified five key recovery processes that belong to personal recovery, namely *connectedness, hope and optimism about the future, identity, meaning in life and empowerment,* also used as the acronym *CHIME*. Connectedness is about feeling connected with others via peer support, support groups, connections and assistance from other people (Bird et al., 2014). Since humans are social creatures and want to feel loved and supported by others, connectedness is seen as an essential factor in personal recovery (Bird et al., 2014). Hope and optimism about the future entails that a person suffering from an SMI regains motivation for recovering and also believes that it is possible to recover from the SMI. This willingness to change and sense of faith can be created by building hope-inspiring relationships, by sharing experiences with other people who suffer from an SMI to provide

some optimistic thinking and by having dreams about the future (Bird et al., 2014). Identity has the purpose to let the client see oneself as someone who is more than ones' SMI and to redesign ones' identity so the client can create a positive sense of oneself again and can overcome the stigma that is oftentimes associated with SMIs (Bird et al., 2014). Meaning in life enables the client to provide meaning towards the SMI and to accept the SMI, to receive higher levels of quality of life, and to have the chance to develop a sense of spirituality (Bird et al., 2014). Furthermore, empowerment has the goal to enable the client to make decisions regarding its' treatment (e.g., medication), to set challenging goals for the client itself to move on with ones' regular lifestyle without having difficulties with ones' mental or physical health, and to adapt to social roles to live a satisfying life (Bird et al., 2014).

In sum, for a long time in mental health, recovery used to focus on diminishing symptoms in clients suffering from an SMI (Psych et al., 2017). Therefore, clients used to receive treatment for a long period of time since the content of treatment oftentimes did not fit well with the needs of the clients (Psych et al., 2017). Nowadays, the focus of treatment has shifted from diminishing symptoms so clients might return to their premorbid state, to a focus that has accepted that returning to a premorbid state is not always possible (Psych et al., 2017). Instead, this focus, named *personal recovery*, aims at changing attitudes, values, roles, goals, feelings, and skills of clients suffering from an SMI so the clients can live a satisfying life while coping with their SMI (Psych et al., 2017). Since personal recovery focuses on the clients' needs, treatment based on personal recovery might be more effective (Anthony, 1993).

Measuring personal recovery

Since personal recovery gained more interest over the years in the mental health care systems, measuring the involvement of personal recovery has become a first concern (Shanks et al., 2013). A literature review by Shanks et al. (2013) with the purpose of describing measures of

personal recovery, investigating the extent to which the described measures rely on aspects of recovery via the CHIME framework, and analysing the psychometric properties of each described measure, found that personal recovery is often measured via interviews and self-report questionnaires. Moreover, Shanks et al. (2013) identified twelve self-report measures of personal recovery. The most popular examples of personal recovery measures are the Recovery Assessment Scale (RAS), which entails 41 items that are about self-esteem, hope, help-seeking behaviour, purpose and strength vision, dependence on others and not letting the illness control ones' life (Corrigan, Giffort, Rashid, Leary, & Okeke, 1999), and the Questionnaire about the Process of Recovery (QPR), which consists of 22 items with two sub-categories namely intra- and interpersonal scales (Neil et al., 2009). The RAS is seen as the most popular measure since it is used most often due to the broad purview of psychometric properties, followed by QPR (Shanks et al., 2013).

Interventions for personal recovery: Current evidence

Another systematic review by Winsper, Singh, Crawford-Docherty, Weich, and Fenton (2020) investigated the aim of personal recovery interventions for individuals suffering from SMI by combining a theory driven logic model with systematic review techniques. They described four main types of interventions that can be effective for enhancing personal recovery, namely *psychoeducational, peer support, social inclusion, and pro-recovery focused interventions*. Psychoeducational, peer support, and social inclusion interventions such as IMR, WRAP, and the Recovery Workbook provide the clients about their SMI and they are being taught how to live with their SMI (Winsper et al., 2020). In addition, pro-recovery interventions focus on the practitioners of the clients to enhance social relationships between the practitioners and the clients (Winsper et al., 2020). Furthermore, Winsper et al. (2020) found that *readiness for personal recovery* is seen as an important element in

enhancing personal recovery and can be acquired via a *person-centred approach*, so that the client as well as the practitioner are decisive if the client is ready for personal recovery.

Furthermore, another systematic review and meta-analysis that investigated whether the *Wellness Recovery Action Plan (WRAP)* is useful for improving personal recovery and clinical outcomes concluded that WRAP is effective in enhancing personal recovery on the short-term but was not persistent over time (Canacott, Moghaddam, & Tickle, 2019). As stated more elaborately in Table 2, WRAP is a self-management intervention for acquiring mental health and entails a peer-based group program that can be used for the management of physical and mental wellbeing by making oneself able to *self-manage* ones' SMI (Copeland, 2002). They also found that the symptoms of the SMI in the clients suffering from SMI have not been decreased but that clients experienced an increase *in self-efficacy, hope,* and *general wellbeing* (Canacott et al., 2019). This is in line with the idea of personal recovery, namely living a satisfying life while coping with an SMI.

Moreover, another scoping review and synthesis of personal recovery interventions for individuals suffering from SMI in supported accommodations by Bitter, Roeg, van Nieuwenhuizen, and van Weeghel (2020), showed that personal recovery interventions, especially the TREE peer-to-peer intervention and the empowerment program provided by nurses are valuable for clients. *The TREE peer-to-peer intervention* helped clients suffering from an SMI to regain their level of *self-esteem,* and to reinvent *self-awareness*, while the *empowerment program* provided by nurses helped clients suffering from an SMI feeling less helpless and this has a positive effect on personal recovery for the clients (Bitter et al., 2020).

Relevance of the literature review

When looking at the systematic review by Winsper et al. (2020) described above, they found inconsistent results of the effectiveness of these types of personal recovery interventions. Therefore, this systematic review will try to investigate these kinds of interventions more

elaborately. Furthermore, the other above described systematic review and meta-analysis of Canacott et al. (2019) focused on one type of intervention only, not covering all types of interventions possibly available to improve personal recovery. Also, the above described scoping review and synthesis by Bitter et al. (2020) investigated all three types of recovery (i.e., clinical, functional and personal recovery) and its interventions, while this review will focus on personal recovery only.

Since there is not much known about personal recovery and its interventions for people suffering from any SMI, this review has the aim to provide a clear and concise overview regarding personal recovery interventions and their effectiveness to improve personal recovery. By summarizing evidence regarding personal recovery interventions for clients suffering from an SMI, clinical practices might be informed and their practitioners/ psychologists will be informed about which interventions work and which interventions are less effective for particular clients suffering from an SMI. Also, this review will inform scientists about potential research gaps. Prior systematic reviews and meta-analyses have not investigated this comprehensively. Therefore, the research questions of this systematic review are:

- What are the sample-, intervention- and methodological characteristics of studies examining the effectiveness of psychological interventions to improve personal recovery in serious mental illness?
- What is the evidence regarding the effectiveness of psychological interventions to improve personal recovery in serious mental illness?
- What is the quality of the included studies?

Methods

The current review has been conducted following the PRISMA guidelines for conducting systematic reviews and meta-analyses and has been pre-registered in PROSPERO, which is a database for the pre-registration for systematic reviews and meta-analyses.

Search strategy

The electronic databases PubMed, PsycInfo and Web of science were searched on March 19, 2020. For each database, text word search terms, medical subject headings (PubMed) or the thesaurus term 'psychosocial rehabilitation' (PsycInfo) were used relating to 'personal recovery' and 'serious mental illness', in combination with terms related to 'effect*', 'intervention*' and 'program*'. In the appendix the complete search strategy can be found. Due to time limitation, this search strategy was already created by the first supervisor of this systematic review, called Jannis Kraiss (JK). Other reviews and meta-analyses were cross-checked to see whether they included studies that were not identified with the current search (Bitter et al., 2020; Canacott et al., 2019; Fiona, Marianne, & Brin, 2016; Richardson & Barkham, 2020; Schrank, Bird, Rudnick, & Slade, 2012; Van Eck, Burger, Vellinga, Schirmbeck, & de Haan, 2018; Wang, Zhou, Chai, & Liu, 2019; Winsper et al., 2020).

Selection of studies

Articles were screened based on title and abstract in the first phase and on full papers in the third phase by JK. The original search has been broadly conducted and aimed to identify studies that examined predictors, determinants and interventions for personal recovery. From the studies JK identified, only a subset of articles that were about randomized controlled trials (RCTs) will be used for the current systematic review because RCTs gives a clear impression and comparison between the outcomes of participants who received the intervention and the group of participants who received a placebo or no intervention.

As described above, measuring personal recovery has become a priority since it is increasing in popularity in the mental health care systems (Shanks et al., 2013). Therefore, the literature review by Shanks et al. (2013) that identified personal recovery measures, is used in this systematic review and served as a foundation for deciding which measures are personal recovery measures. Shanks et al. (2013) concluded that there are twelve personal recovery measures, such as the Illness Management and Recovery Scale (IMRS), the Mental Health Recovery Measure (MHRM), and the Recovery Assessment Scale (RAS). Each measure assesses personal recovery via self-report measures (Shanks et al., 2013). However, since the literature review of Shanks et al. (2013) is seven years old already, it might not include all measures regarding personal recovery. However, no other personal recovery measures were found. Therefore, included studies for this systematic review are psychological intervention studies regarding personal recovery in which personal recovery is assessed via a self-report measure that is described in the literature review of Shanks et al. (2013).

Along for studies to be included, personal recovery should be a primary or secondary outcome. Moreover, studies had to include clients with a confirmed diagnosis by the ICD or DSM of *schizophrenia, schizoaffective disorder, bipolar disorder, depression, psychotic disorders, mood/ anxiety disorders, adjustment disorders, alcohol abuse, psychoactive substance use,* or *delusional disorders*. However, due to the time limitation for this systematic review, only articles within a timeframe of ten years, ranging from 2010 until 2020, were included for this systematic review. Furthermore, articles which described interventions regarding a lifestyle, meditation, yoga or any other physical intervention were excluded since these interventions are not psychological interventions. Lastly, articles that described qualitative studies, articles that entailed conference abstracts, dissertations and book chapters were also excluded because they are oftentimes not peer-reviewed.

Data collection

Data was collected on: 1) Sample characteristics, including age, gender, diagnosis, and sample size; 2) Intervention characteristics, including the type of personal recovery intervention, number of sessions, duration time in weeks, retention rates, and support (i.e., with or without a psychologist); 3) Methodological characteristics, including study design (i.e., RCTs), type of control group, assessment points (with and without the real intervention), and outcome measures used to assess personal recovery. Outcomes extracted from the studies included personal recovery at baseline and, if applicable, at follow-up. Outcomes of the studies were described narratively and no attempts were made to pool the results across studies.

Quality assessment

All the studies were rated on methodological quality using criteria based on the Joanna Briggs Institute Critical Appraisal tool that served as a checklist for RCTs (Tufanaru, 2017). This rating consists of thirteen items that are rated as 0 (‘no, unclear or not applicable’) or 1 (‘yes’), resulting in a maximum quality score of 13 points. Studies were identified as ‘good’ when thirteen to ten criteria were met, ‘fair’ when nine to seven criteria were met, and ‘poor’ when six or fewer criteria were met. The scores that are attached to the sub-categories ‘good’, ‘fair’, and ‘poor’ are created by the author of this systematic review and are checked by her supervisor, JK. The included items cover: 1) Using true randomization for assignment of participants to treatment groups; 2) Allocation to treatment groups was concealed; 3) Treatment groups were similar at the baseline; 4) Participants were blind to treatment assignment; 5) Those delivering treatment were blind to treatment assignment; 6) Outcome assessors were blind to treatment assignment; 7) Treatment groups were treated identically other than the intervention of interest ; 8) Follow up was complete and if not, differences between groups in terms of their follow up were adequately described and analyzed; 9)

Participants were analyzed in the groups to which they were randomized; 10) Outcomes were measured in the same way for treatment groups; 11) Outcomes were measured in a reliable way; 12) Appropriate statistical analysis was used and 13) The trial design was appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial. The author of this systematic review conducted the quality assessment to find out the quality of the included studies (i.e., the third research question).

Results

Selection of studies

A total of 8,014 studies were found in the electronic database searches. After excluding duplicates (n= 2,104) and removing the studies at the record screening phase (n= 5,599), 311 abstracts were reviewed (see Fig. 1). In the record screening phase, 5,599 studies were removed because the original search was not specific enough in terms of search terms used and because only high quality designs (RCTs) were used. However, of the 311 abstracts, 301 articles were excluded since they did not meet the eligibility criteria. The reasons for exclusion were: inappropriate design (n= 163), no personal recovery outcome (n=107), conference abstract or dissertation (n= 14), not available (n= 8), not English or Dutch (n= 7), and no clinical sample (n= 2). As a repercussion, ten studies are included in this systematic review.

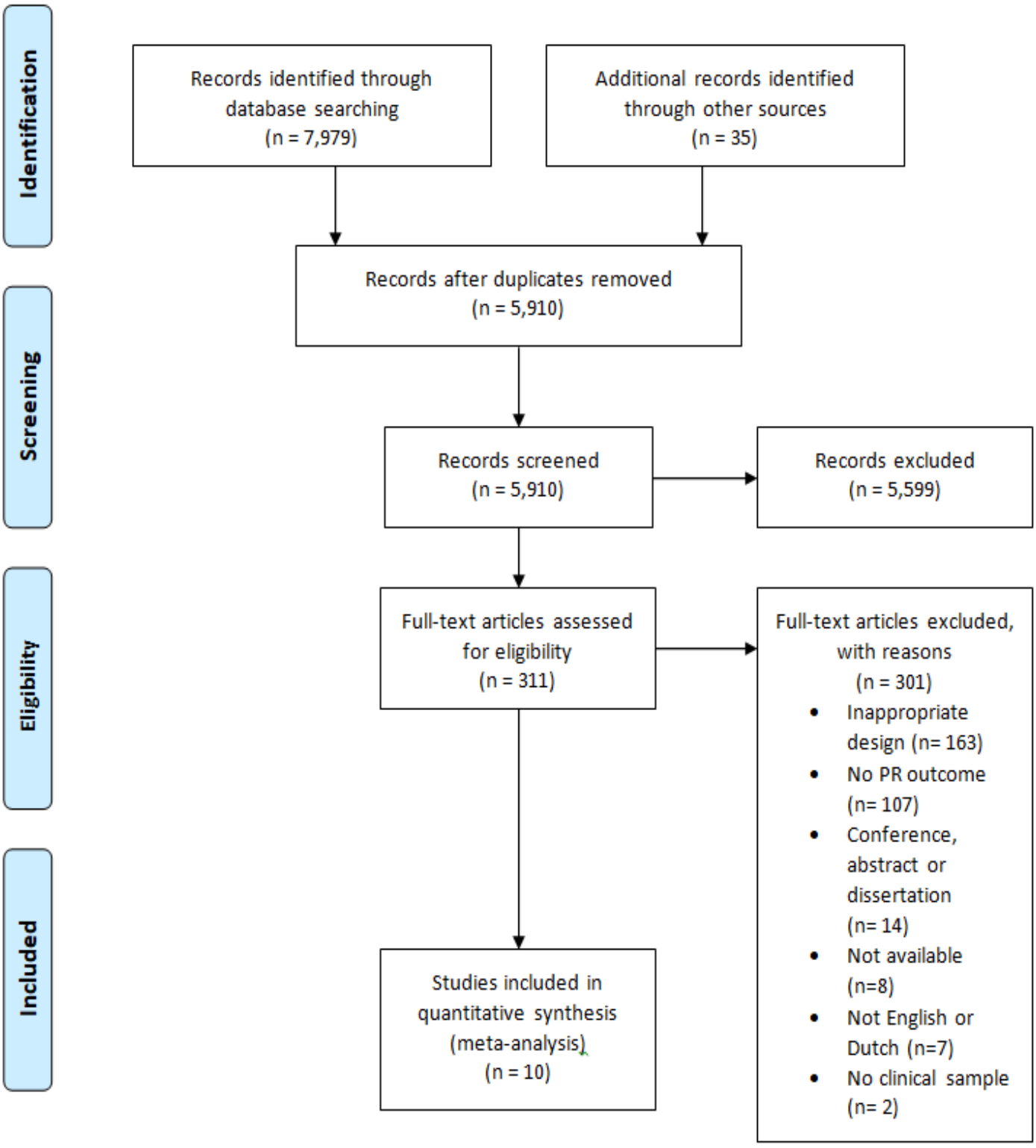

Figure 1. Flowchart of the study selection process.

Table 1.

Characteristics of studies included in the systematic review

Author (s), year	**Diagnosis**	**Sample size**	**Gender, % female**	**Mean age (SD)**	**Format (guidance)**	**Duration in weeks (n sessions)**	**Retention rate**	**Follow-up (in weeks)**	**Outcome measures**
(Barbic, Krupa, & Armstrong, 2009)	Schizophrenia, bipolar disorder	Control n=17 Intervention n =16	Control 35% Intervention 31%	Control 44.58 (8.05) Intervention 44.69 (9.62)	Group (with guidance from therapists	12 weeks (12)	N/A	N/A	RAS
(Beentjes et al., 2018)	Psychotic disorders, mood/ anxiety disorders, other disorders	Control n= 19 Intervention n= 41	Control 31.6% Intervention 73.2%	Control 40.7 (10.6) Intervention 46.9 (11.6)	Group (with guidance from therapists)	24 weeks (24)	70%	24	MHRM
(Bitter, Roeg, van Assen, van Nieuwenhuizen, & van Weeghel, 2017)	SMIs	Control n= 111 Intervention n= 152	Control 35% Intervention 35%	Control 49.36 (13.25) Intervention 50.76 (14.29)	Group (with guidance from trained CARe coaches)	40 weeks (8)	68%	40 (8 sessions)	MHRM

Author (s), year	Diagnosis	Sample size	Gender, % female	Mean age (SD)	Format (guidance)	Duration in weeks (n sessions)	Retention rate	Follow-up (in weeks)	Outcome measures
(Chiba, Miyamoto, Kawakami, & Harada, 2014)	Schizophrenia, depression, bipolar disorder, anxiety disorder, adjustment disorder, alcohol abuse, and other SMI	Control n= 28 Intervention n= 26	Control 42.9% Intervention 38.5%	Control 42.6 (10.9) Intervention 41.3 (11.1)	Group (with guidance from therapists)	8 weeks (8)	85.2%	12	RAS
(Cook, Copeland, Floyd, et al., 2012)	Schizophrenia, schizoaffective disorder, bipolar disorder, depressive disorder, other SMI	Control n= 268 Intervention n= 251	Control 65% Intervention 67%	Control 45.8 (10.0) Intervention 45.7 (9.8)	Group (with guidance from mental health consuming peers)	8 weeks (8)	86%	32	RAS
(Cook, Steigman, et al., 2012)	Schizophrenia, schizoaffective disorder, bipolar disorder, depressive disorder, other SMI	Control n= 216 Intervention n= 212	Control 57.4% Intervention 53.8%	Control 43.0 (11.8) Intervention 42.7 (9.9)	Group (with guidance from experts regarding BRIDGES)	8 weeks (8)	68%	26	RAS

Author (s), year	Diagnosis	Sample size	Gender, % female	Mean age (SD)	Format (guidance)	Duration in weeks (n sessions)	Retention rate	Follow-up (in weeks)	Outcome measures
(Goldberg et al., 2013)	Schizophrenia, bipolar disorder	Control n= 31 Intervention n= 32	Control 48% Intervention 56%	Control 49.3 (11.1) Intervention 46.7 (6.7)	Group (with guidance from mental health consuming peers)	13 weeks (13)	90%	8 (2 sessions)	RAS-SF
(Jensen et al., 2019)	Schizophrenia, bipolar disorder	Control n= 99 Intervention n= 99	Control 44.4% Intervention 45.5%	Control 45.0 (11.5) Intervention 41.0 (11.0)	Group (with guidance from therapists)	36 weeks (36)	69%	52	MHRS, ASHS, PS
(Morse et al., 2020)	Schizophrenia, schizoaffective disorder, bipolar disorder	Control n= 48 Intervention n= 53	Control 42% Intervention 41%	Control 44.2 (11.6) Intervention 43.7 (11.7)	Group (with guidance from therapists)	52 weeks (0->25)	N/A	52	RAS

Author (s), year	Diagnosis	Sample size	Gender, % female	Mean age (SD)	Format (guidance)	Duration in weeks (n sessions)	Retention rate	Follow-up (in weeks)	Outcome measures
(O'Keeffe et al., 2015)	Psychoactive substance use, schizophrenia, schizoaffective disorder, delusional disorder, mood disorders, somatoform disorders	Control n= 18 Intervention n= 18	Control 44.4% Intervention 61,1%	Control 47.78 (9.67) Intervention 48.28 (11.46)	Group (with guidance from therapists)	Two days (2)	66.66%	36	MHRS

Note. RAS= Recovery Assessment Scale, MHRM= Mental Health Recovery Measure, RAS-SF= Recovery Assessment Scale Short-Form, MHRS= Mental Health Recovery Star, ASHS= Adult State of Hope Scale, PS= Patient Satisfaction. N/A = not available.

Population characteristics

An overview of the population characteristics can be found in Table 1. The included studies contained 1755 adult participants, with 855 participants in the control conditions and 900 participants in the intervention conditions. The mean age of the participants in the control conditions was 45.23 years (SD= 10.85, range (34.38-56.08), the mean age of the participants in the personal recovery intervention conditions was 45.17 (SD= 10.72, range 34.45- 55.89) and the mean age of both conditions together was 45.20 (SD= 10.79, range 34.41-55.99). In the control conditions, 44.57% were women and in the intervention conditions, 50.21% were women. In eight studies, schizophrenia was included as a diagnosis of SMI. Other diagnoses that were used in the studies were bipolar disorder (n=7), schizoaffective disorder (n=4), other forms of SMIs (n=4), mood/ anxiety disorder (n=3), depression (n=3), somatoform disorder (n=1), substance abuse (n=2), delusional disorder (n=1), psychotic disorders in general (n=1) and adjustment disorder (n=1).

Methodological characteristics

The methodological characteristics can be found in Table 1 and in Table 2. Table 1 provides an overview of the characteristics of the included studies and shows that all the psychological interventions were aimed at improving personal recovery. Table 1 also shows that personal recovery was measured via the RAS (n=5), MHRM (n=2), MHRS (n=2), RAS-SF (n=1), ASHS (n=1) and PS (n=1). Furthermore, Table 1 indicates that all the ten included studies were group based interventions. In addition, the studies by Barbic et al. (2009); Beentjes et al. (2018); Chiba et al. (2014); Jensen et al. (2019); Morse et al. (2020) and O'Keeffe et al. (2015) guided the participants with therapists, the studies of Cook, Copeland, Floyd, et al. (2012) and Goldberg et al. (2013) guided the participants with peers who were mental health consumers as well, the study of Bitter et al. (2017) guided the participants with trained CARe

coaches, and the study of Cook, Steigman, et al. (2012) guided the participants with experts regarding the BRIDGES intervention. Moreover, Table 1 indicates that, in all the 10 studies, the interventions were guided by therapists. Furthermore, the duration of the interventions varied from two days to 52 weeks. The mean retention rate, established on dropouts at post-intervention, was 75.36% (available for 8 studies). For the nine studies that included follow-up measurements, the average follow-up time was 31.3 weeks after post-intervention. Table 2 represents the outcome characteristics of the included studies. This table also displays the names of the included interventions as provided by the authors of the studies with descriptions of these interventions, included. Furthermore, Table 2 shows that from the ten included studies, eight studies compared personal recovery interventions to treatment as usual and the other two studies compared personal recovery interventions to a waitlist condition.

Table 2.

Outcome characteristics of the included studies in this systematic review

Author(s), year	Intervention	Description of the intervention	Control group	Outcomes and conclusions
(Barbic et al., 2009)	Recovery Workbook	The Recovery Workbook is an educational program that aims to: enhance consciousness of recovery, increase consciousness of the importance and nature of stress, enhance personal meaning, build personal support and design goals and courses of action	Treatment as usual (active)	The intervention group showed, at least on short-term (due to lack of follow-up), a significant increase in recovery (p= .02, η^2= .14). Especially the subcategories of personal confidence and hope (p= .03, η^2= 0.13), and goal and success orientation (p= .29, η^2= .19) had a significant positive effect on the intervention group
(Beentjes et al., 2018)	E-Health added to the Illness Management and Recovery program (E-IMR)	E-IMR is a standardized educational approach developed to provide individuals suffering from an SMI with information and skills necessary for coping with the SMI efficiently and to achieve personal recovery goals	Treatment as usual (active)	The intervention group showed a significant positive effect on recovery (p= .02) at post-test, but this significant positive effect did not remain until follow-up (p= .11). This indicates that E-IMR is effective in improving personal recovery among individuals with SMI. However, further research is needed to study the effectiveness of E-IMR for individuals suffering from SMI on the long-term
(Bitter et al., 2017)	Comprehensive Approach to Rehabilitation (CARe)	CARe has the purpose to improve QOL among individuals with SMI by assisting them in realising their goals, managing their vulnerability and enhancing the quality of their social environment	Treatment as usual (active)	The intervention group showed no significant effect over time (post-test: d= .21, p= .11 and follow-up: d= .26, p= .08). This indicates that it might take more time and effort to enhance personal recovery for individuals suffering from SMI and that this intervention, for now, is not effective

Author(s), year	Intervention	Description of the intervention	Control group	Outcomes and conclusions
(Chiba et al., 2014)	The Journey towards Happier Life	The Journey towards Happier Life focuses on facilitating recovery by increasing benefit finding, personal meaning, and a sense of happiness. The program focuses on an individual's positive traits instead of negative traits	Treatment as usual (active)	The intervention group showed a significant positive effect of recovery both at post-intervention (d= .50, p <.05) and follow-up (d= .69, p < .05). Among the subcategories, the subcategories of goal/ success orientation and hope (T2: d= .14, p < .05; T3: d=.33, p <.05), reliance on others (T2: d= .21, p < .05; T3: d= .38, p < .05), and personal confidence (T2: d= .31, p < .001; T3: d= .56, p < .001) showed a positive significant effect. Therefore, the Journey towards Happier Life is an effective intervention for improving personal recovery among individuals suffering from SMI

Author(s), year	Intervention	Description of the intervention	Control group	Outcomes and conclusions
(Cook, Copeland, Floyd, et al., 2012)	Wellness Recovery Action Planning (WRAP)	WRAP is an illness self-management intervention that consists of an educational component that enhances a healthy lifestyle and a psychological component that supports peer support. So, WRAP helps clients with developing personal wellness resources and how to use these resources in daily life, as well as how clients can cope with symptom triggers, early warning signals of illness exacerbation, and crisis periods	Waitlist (inactive)	The intervention group showed a significant increase over time in recovery (p= .04). Moreover, the intervention group showed a significant positive effect on the subcategories of personal confidence (p= .03) and goal orientation (p= .02). Moreover, WRAP creates a safe environment for clients with peers acting as role models for recovery and offering support for enhancing ones' wellness. WRAP focuses on increasing competence, relatedness and autonomy, which are all processes that improve health outcomes for SMIs. WRAP is effective in improving personal recovery for clients suffering from SMI
(Cook, Steigman, et al., 2012)	Building Recovery of Individual Dreams and Goals through Education and Support (BRIDGES)	BRIDGES is an educational approach that has the aim to offer detailed information on SMIs and treatments, self-help and the philosophy of recovery, and independent living skills (e.g., job readiness)	Waitlist (inactive)	The intervention group showed a positive significant effect over time in recovery (p= .01). Moreover, the subcategories of personal confidence (p= .01), goal orientation (p= .05), and no symptom domination (p= .05) showed a positive significant effect as well. Therefore, BRIDGES is effective in improving self-perceived recovery in diverse communities

Author(s), year	Intervention	Description of the intervention	Control group	Outcomes and conclusions
(Goldberg et al., 2013)	Living Well	Living well is an illness self-management intervention and has the aim to support individuals suffering from SMI	Treatment as usual (active)	The intervention group showed no significant positive effect on recovery at post-test (d=.42, p=.13) as well as at follow-up (d=. 19, p= .48). Therefore, Living Well is not effective in enhancing recovery among individuals suffering from SMIs. Due to the limitations of the research, future research is necessary to indicate whether Living Well might be effective to improve personal recovery
(Jensen et al., 2019)	Illness Management and Recovery (IMR)	IMR is an educational rehabilitation program for individuals suffering from SMI and IMR has the short-term purpose to improve illness self-management and the long-term purpose to help individuals with achieving clinical and personal recovery	Treatment as usual (active)	The intervention group showed no significant effect of personal recovery (MHRS: p= .47; ASHS: p= .86; PS: p= .28). IMR not effective to improve personal recovery
(Morse et al., 2020)	Active Community Treatment (ACT)+ Illness Management and Recovery Scale (IMR)	IMR (described above), is integrated into ACT (i.e., an integrated approach regarding mental health services instead of hospitalizations) to enhance recovery and functioning of individuals suffering from SMI	Treatment as usual (active)	The intervention group showed little significant effect (d= 0.51, p= 0.95). For now, the ACT+IMR intervention measure is ineffective in improving personal recovery

Author(s), year	**Intervention**	**Description of the intervention**	**Control group**	**Outcomes and conclusions**
(O'Keeffe et al., 2015)	Wellness Recovery Action Planning (WRAP)	See the description of WRAP above	Waitlist (inactive)	The intervention group showed a positive significant effect of recovery in the areas of addictive behaviour (p= .05) and identity and self-esteem (p= .03). However, the intervention group showed no significant overall effect of improved recovery (p= .22). Future research is necessary to indicate whether WRAP is effective in other outcome domains

Note. η^2 = Effect size. p= P-value. $p \leq 0.05$= Significant. d= Cohen's d.

Outcomes

The outcomes of the included studies are displayed in Table 2. The Recovery Workbook program, which is an educational program, measured personal recovery via the RAS and showed, at post-test, an increased significant level of personal recovery (p= .02, η^2= 0.14) in the intervention group compared with the control group, who received treatment as usual (Barbic et al., 2009). In particular, the sub-categories personal confidence and hope (p= .03, η^2= 0.13), and goal and success orientation (p= .29, η^2= 0.19) had a significant positive effect on the intervention group at post-test (Barbic et al., 2009). Therefore, the Recovery Workbook program can be considered as an effective intervention in enhancing personal recovery among individuals suffering from SMI in short-term but due to a lack of follow-up, future research is needed to investigate the long-term effects of the Recovery Workbook program (Barbic et al., 2009).

Another educational approach, namely E-IMR, measured personal recovery via the MHRM and found a significant positive effect (p= .02) of personal recovery on the intervention group compared with the control group, who received treatment as usual at post-test (Beentjes et al., 2018). However, this significant positive effect did not remain until follow-up (p= .11) (Beentjes et al., 2018). This indicates that E-IMR is effective in improving personal recovery among individuals suffering from SMI on short-term (Beentjes et al., 2018). However, future research is needed to study the effectiveness of E-IMR for individuals suffering from SMI on the long-term (Beentjes et al., 2018).

The CARe intervention which focused on improving the quality of life (QOL) of individuals suffering from an SMI, measured personal recovery via the MHRM and indicated that the intervention group showed no significant positive effect overtime at post-test (d= .21, p= .11) as well as at follow-up (d= .26, p= .08) compared with the control group, who received treatment as usual (Bitter et al., 2017). As a repercussion, it can be stated that for

now, CARe is not an effective intervention in enhancing personal recovery among individuals suffering from SMI but that it might take more time and effort with this intervention (Bitter et al., 2017).

The Journey Towards Happier Life intervention that focused on an individual's positive traits instead of negative traits, measured personal recovery via the RAS and demonstrated that the intervention group showed a significant positive effect of personal recovery at post-test (d= .50, p <.05), as well as at follow-up (d= .69, p < .05) compared with the control group, who received treatment as usual (Chiba et al., 2014). Especially the sub-categories of goal/ success orientation and hope (post-test: d= 0.14, p < .05; follow-up: d= .33, p < .05), reliance on others (post-test: d= .21, p < .05; follow-up: d= .38, p < .05), and personal confidence (post-test: d= .31, p < .001; follow-up: d= .56, p < .001) showed a positive significant effect (Chiba et al., 2014). Therefore, the Journey towards Happier Life is an effective intervention for improving personal recovery among individuals suffering from an SMI (Chiba et al., 2014).

Another educational intervention that also entails peer support, named the WRAP, measured personal recovery via the RAS and the intervention group showed a significant positive effect of recovery over time (p= .04) compared with the control group, who were assigned to a waitlist (Cook, Copeland, Floyd, et al., 2012). Also, the WRAP showed a significant positive effect on the subcategories of personal confidence (p= .03), and goal orientation (p= .02) (Cook, Copeland, Floyd, et al., 2012). Therefore, WRAP is effective in improving personal recovery for individuals suffering from an SMI (Cook, Copeland, Floyd, et al., 2012).

Furthermore, another educational intervention named BRIDGES measured personal recovery via the RAS and the intervention group showed a positive significant effect over time in recovery (p= .01) compared with the control group, who were placed on a waitlist to

participate in the intervention (Cook, Steigman, et al., 2012). Moreover, the subcategories of personal confidence (p= .01), goal orientation (p= .05), and no symptom domination (p= .05) showed a significant positive effect as well (Cook, Steigman, et al., 2012). Therefore, BRIDGES is effective in improving self-perceived recovery in diverse communities (Cook, Steigman, et al., 2012).

The intervention named Living Well is a self-management intervention that measured personal recovery via the RAS-SF and the intervention group showed no significant improvement in recovery at post-test (d=.42, p=.13) as well as at follow-up (d=. 19, p= .48) compared with the control group, who received treatment as usual (Goldberg et al., 2013). This suggests that living well is not effective in enhancing recovery among individuals suffering from SMIs (Goldberg et al., 2013).

Another education intervention is the IMR intervention (Jensen et al., 2019). IMR measured personal recovery via MHRS, ASHS, and PS and the intervention group showed no significant effect of personal recovery (MHRS: p= .47; ASHS: p= .86; PS: p= .28) compared with the control group, who received treatment as usual (Jensen et al., 2019). As a result, IMR is not effective in enhancing personal recovery (Jensen et al., 2019).

Active Community Treatment (ACT)+ Illness Management Recovery Scale (IMR) is an intervention wherein IMR (described above), is integrated into an approach regarding mental health services instead of hospitalizations to improve personal recovery and functioning of individuals suffering from SMI (Morse et al., 2020). Personal recovery was measured via the RAS and the intervention group showed a small effect (d= .51, p= .95) compared with the control group, who received treatment as usual (Morse et al., 2020). For now, this effect is too small for ACT+IMR to be an effective intervention (Morse et al., 2020).

In the study by O'Keeffe et al. (2015), WRAP was compared to an inactive control group since the control group was assigned into a waitlist condition. In this study, personal recovery was measured via the MHRS and the intervention group showed a significant positive effect of personal recovery in the areas of addictive behaviour (p= .50) and identity and self-esteem (p= .03) (O'Keeffe et al., 2015). However, WRAP demonstrated no significant overall effect of improved recovery (p= .22) (O'Keeffe et al., 2015). Therefore, future research is necessary to indicate whether WRAP is effective in other outcome domains (O'Keeffe et al., 2015).

Table 3.

Quality assessment

Author(s), year	(Barbic et al., 2009)	(Beentjes et al., 2018)	(Bitter et al., 2017)	(Chiba et al., 2014)	(Cook, Copeland, Floyd, et al., 2012)	(Cook, Steigman, et al., 2012)	(Goldberg et al., 2013)	(Jensen et al., 2019)	(Morse et al., 2020)	(O'Keeffe et al., 2015)
Was true randomization used for assignment of participants to treatment groups?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Was allocation to treatment groups concealed?	Yes	No	Yes	Yes	Yes	No	No	Yes	No	Yes
Were treatment groups similar at the baseline?	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Were participants blind to treatment assignment?	Yes	No	No	N/A	Yes	No	N/A	Yes	No	No
Were those delivering treatment blind to treatment assignment?	No	No	No	N/A	Yes	Yes	N/A	Yes	No	No
Were outcomes assessors blind to treatment assignment?	Yes	No	No	N/A	Yes	No	N/A	Yes	No	Yes

Author(s), year	(Barbic et al., 2009)	(Beentjes et al., 2018)	(Bitter et al., 2017)	(Chiba et al., 2014)	(Cook, Copeland, Floyd, et al., 2012)	(Cook, Steigman, et al., 2012)	(Goldberg et al., 2013)	(Jensen et al., 2019)	(Morse et al., 2020)	(O'Keeffe et al., 2015)
Were treatment groups treated identically other than the intervention of interest?	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Were participants analysed in the groups to which they were randomized?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Were outcomes measured in the same way for treatment groups?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Were outcomes measured in a reliable way?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Was an appropriate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Author(s), year	(Barbic et al., 2009)	(Beentjes et al., 2018)	(Bitter et al., 2017)	(Chiba et al., 2014)	(Cook, Copeland, Floyd, et al., 2012)	(Cook, Steigman, et al., 2012)	(Goldberg et al., 2013)	(Jensen et al., 2019)	(Morse et al., 2020)	(O'Keeffe et al., 2015)
statistical analysis used?										
Were the trial design appropriate and any deviation from the standard RCT design accounted for in the conduct and analysis of the trial?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Score	11 'Good'	6 'Poor'	9 'Fair'	10 'Good'	13 'Good'	10 'Good'	9 'Fair'	13 'Good'	9 'Fair'	11 'Good'

Note. N/A= Not applicable.

Quality of studies

The quality scores of the studies are displayed in Table 3. If a criterion was not reported in the paper, it was labelled as N/A (not available) and the criterion was then rated as no. The quality of the studies ranged between good (n=6), fair (n=3) and poor (n=1). A study was qualified as good when the study scored 13 till 10 points; fair, when the study scored between 9 and 7 points; and poor when the study received 6 or fewer points. The study of Cook, Copeland, Floyd, et al. (2012) received the maximum score of 13, indicating that their study satisfied all points provided by the JBI, while the study of Beentjes et al. (2018) received with six points only, a poor quality score. The poor quality score can be explained by the facts that Beentjes et al. (2018) did not blind the participants, treatment deliverers and outcome assessors did not treat treatment groups identically other than the intervention of interest, lacked a complete follow-up, and did not adequately describe and analysed the incomplete follow-up.

Overall, three components have been measured, namely the characteristics, outcomes and quality of the included studies. Firstly, the characteristics represented the mean age of the participants, distribution of gender among the control and intervention groups, included SMIs, personal recovery measures, format and kind of therapist, duration of the interventions, retention rates, and follow-up time of the included studies. Secondly, the outcomes described the interventions, form of control group (i.e., treatment as usual or waitlist condition), and the outcomes and conclusions of the included psychological interventions aimed at improving personal recovery. Lastly, the quality of studies investigated the quality of the designs of the included studies and was rated with a good, fair or poor score.

Discussion

To the knowledge of the author, little is known about the effect of psychological interventions to improve personal recovery in SMI. Therefore, this systematic review had the goal to provide a clear and concise overview regarding characteristics, effectiveness and quality of personal recovery interventions. The main goal of this review was to inform clinical practitioners about what characteristics of psychological interventions are effective to improve personal recover in SMI and which interventions might be particularly promising. Furthermore, this review also had the goal to inform scientists about research gaps regarding personal recovery interventions. Therefore, this review might help to indicate how future personal recovery interventions can be more effective, by looking at the characteristics, effective elements, and the quality of current personal recovery interventions.

This systematic review included ten studies that investigated psychological interventions aimed at improving personal recovery in individuals suffering from SMI. The characteristics of these studies are depicted in Figure 1. Figure 1 showed that the ten included studies entailed an RCT, measured personal recovery via self-report measures, included participants with an SMI diagnosis according to the guidelines of the ICD or DSM, were written between 2010 till 2020, did not include physical interventions, were not qualitative, nor did they entail conference abstracts, dissertations and book chapters.

The population characteristics were represented in Table 1 and this table indicated that the participants of the ten included studies suffered from diverse SMIs, so that interventions regarding personal recovery were focused on SMIs in general. Because schizophrenia was mentioned in eight out of the ten studies, schizophrenia was the most common SMI in this systematic review. The reason why most studies aim at schizophrenia is because these clients are most difficult to treat due to patient- related, medication- related, environmental, and clinician-related factors (Fenton, Blyler, & Heinssen, 1997). In addition, personal recovery in

schizophrenics is different from personal recovery in individuals suffering from other SMIs since schizophrenics are impaired to a great extent and have minimal decision-making capacity (Bellack, 2006). Since this systematic review focused on improving personal recovery in individuals suffering from SMIs in general, the form of personal recovery that has been used for this review is the regular form of personal recovery that aims at changing attitudes, values, roles, goals, feelings, and skills of individuals suffering from an SMI so they are able to live a satisfying life while coping with their SMI (Psych et al., 2017). Furthermore, Table 1 also showed that the sample sizes and the characteristic 'gender' were equally distributed in the control groups as well as in the intervention groups within nine studies. The study of Beentjes et al. (2018) was, with n=19 in the control group from which 31.6% were females, and n= 41 in the intervention group from which 73.2% were females, unequally distributed. This unequal distribution can be explained since more women dropped out of the study in the control group compared with the intervention group (Beentjes et al., 2018).

Outcome characteristics of the included studies were described in Table 1 and in Table 2. Table 2 showed that, from the included psychological interventions, five appeared to be effective and five appeared to be ineffective in improving personal recovery in individuals suffering from SMI. The five effective personal recovery interventions were the Recovery Workbook program, E-IMR, The Journey towards Happier Life, BRIDGES, and WRAP (Barbic et al., 2009; Beentjes et al., 2018; Chiba et al., 2014; Cook, Copeland, Floyd, et al., 2012; Cook, Steigman, et al., 2012). On the contrary, a different included study in this systematic review found that WRAP appeared to be ineffective but this will be discussed later on (O'Keeffe et al., 2015). Therefore, WRAP also appeared to be an ineffective psychological intervention in enhancing personal recovery in individuals suffering from SMI, just as the CARe, Living Well, IMR, and ACT+IMR interventions (Bitter et al., 2017; Goldberg et al., 2013; Jensen et al., 2019; Morse et al., 2020; O'Keeffe et al., 2015). In addition, a personal

recovery intervention was considered to have a small effect when Cohen's *d* was ≥ .2 ≤ .5, a moderate effect when Cohen's *d* was ≥ .5 ≤ .8, and a large effect when Cohen's *d* was ≥ .8. However, the study by Barbic et al. (2009) did not use Cohen's *d* but η^2 to measure effect sizes.

In general, Table 2 showed that effective personal recovery interventions often focused on an educational approach that informed the clients about their SMI, the importance and nature of stress, how to conduct a healthy lifestyle, and about the purpose of setting one's own goals in life (Barbic et al., 2009; Beentjes et al., 2018; Cook, Copeland, Floyd, et al., 2012; Cook, Steigman, et al., 2012). Besides, the educational approach also focused on acquiring coping skills so individuals suffering from SMI are able to design goals for oneself, regain self-esteem, rely on personal support, and to self-manage their SMI (Barbic et al., 2009; Beentjes et al., 2018; Cook, Copeland, Floyd, et al., 2012; Cook, Steigman, et al., 2012).

One of these educational based interventions that showed a significant positive effect was the Recovery Workbook program (Barbic et al., 2009). However, this effect was only measured in the short-term since Barbic et al. (2009) did not include a follow-up and no other studies exist that investigate the long-term effectiveness of the Recovery Workbook intervention. Another review that researched the effects of psychoeducational interventions among individuals suffering from schizophrenia, found that psychoeducation informed the individuals suffering from schizophrenia about their SMI and these individuals gained insights into how to cope with their SMI in the most efficient way (Xia, Merinder, & Belgamwar, 2011). This led to a decrease in relapse rate, readmission, and hospitalization while it supported medication intake (Xia et al., 2011). So, psychoeducation enhanced personal recovery on the long-term (Xia et al., 2011). This indicates that educative programs might be promising to improve personal recovery not only in the short-term but also in the

long-term (Xia et al., 2011). However, future research is needed to investigate whether the Recovery Workbook program is also effective on the long-term.

Another educational intervention that might be effective to enhance personal recovery but was not discussed in this systematic review, is the *Peer Support Workers* (Repper & Carter, 2011).This intervention consists of a group of individuals with SMIs, who use their experiences to support other individuals suffering from SMI. Seven RCTs showed that this intervention is effective in improving functioning, control, hope, empowerment, social relationships and a decrease in symptom severity (Repper & Carter, 2011). One form of Peer Support Workers is the intervention BRIDGES, which appeared to be an effective educational intervention as well (Cook, Steigman, et al., 2012). BRIDGES is included in this systematic review by the study of Cook, Steigman, et al. (2012) and was found to be an effective personal recovery intervention, especially for the sub-categories of personal confidence, goal orientation, and no symptom domination (Cook, Steigman, et al., 2012). However, BRIDGES did not show a significant positive effect in the subcategories willingness to ask for help, and reliance on others (Cook, Steigman, et al., 2012). This might indicate that this intervention needs to be complemented with other support services, such as peer support and health care (Cook, Steigman, et al., 2012). Furthermore, the educational approach that is used by BRIDGES, appeared to have a large significant effect on personal recovery since another study showed that the level of self-management, and thus the level of personal recovery, increased due to education (Slade et al., 2014). Besides, peer support was also applied in BRIDGES (Cook, Steigman, et al., 2012). Other studies have found that peer support also has a positive significant effect on personal recovery and that especially acquiring clients with new skills, having a role model, mentor, or someone with whom the clients can share their experiences, are the most efficient forms of peer support to enhance personal recovery (Gidugu et al., 2015; Pickett et al., 2010). Thus, findings from prior research as well as from

the current review suggest that BRIDGES might be a promising treatment to enhance personal recovery in people with SMI.

Another included personal recovery intervention that also relied upon an educational approach and showed a positive significant effect on the long-term, was the WRAP (Cook, Copeland, Floyd, et al., 2012). However, the study by O'Keeffe et al. (2015) found that, although WRAP did show a small significant effect in addictive behaviour, and identity and self-esteem, it appeared to be ineffective in enhancing personal recovery. The study by Cook, Copeland, Floyd, et al. (2012), that found a positive significant effect of personal recovery in individuals suffering from SMI when applying the WRAP, also found that the participants of the WRAP showed a decrease in symptom severity. This is in line with other studies, which also found reductions in symptom severity when applying the WRAP (Cook, Copeland, Jonikas, et al., 2012; Fukui et al., 2011). A commonality of these studies is that they were all conducted in the United States with large sample sizes (Cook, Copeland, Floyd, et al., 2012; Cook, Copeland, Jonikas, et al., 2012; Fukui et al., 2011). However, when looking at a study that was conducted outside the United States with a smaller sample size, reduction in symptom severity did not occur (Mak et al., 2016). This is a similar finding with the included study of O'Keeffe et al. (2015), that concluded that symptom severity did not improve when using WRAP in a small sample of people with SMI. Therefore, ‘sample size’ may be a possible explanation for the difference in effectiveness within the included studies. It might be interesting for future research to investigate what factors influence the effectiveness of WRAP.

Furthermore, findings of the study by Cook, Copeland, Floyd, et al. (2012) found that, the longer participants were treated with WRAP, the more their personal recovery improved. Since the WRAP intervention in the included study by O'Keeffe et al. (2015) only had a duration of two days, participants were only exposed to the WRAP intervention for a short

time. In contrast, the study by Cook, Copeland, Floyd, et al. (2012) had a duration time of eight weeks with weekly sessions. This coincides with prior research by Harnett, O'Donovan, and Lambert (2010), which investigated the number of psychotherapy sessions needed for individuals suffering from SMI to show recovery. They estimated that individuals with SMI needed approximately 14 sessions of psychotherapy to recover for 50%, and 23 sessions to recover for 70% from SMI. This suggests that more sessions psychotherapy might lead to more personal recovery (Harnett et al., 2010). Furthermore, they concluded that individuals suffering from SMI, need to have at least 20 sessions to enhance personal recovery (Harnett et al., 2010). Thus, the short duration of the WRAP intervention in the study by O'Keeffe et al. (2015) might be a possible explanation for the ineffectiveness of enhancing personal recovery in individuals suffering from SMI. Furthermore, the study by O'Keeffe et al. (2015) did not contain a follow-up measures so comparisons between the intervention and control group on the long-term could not be made. In addition, with a sample size of 36, the statistical power of the study was relatively low, making it less likely to find a significant effect (O'Keeffe et al., 2015). Cook, Copeland, Floyd, et al. (2012), in contrast, included a large sample of 519, so effects were more likely to be found. The differences in the duration of the intervention and in the methodological characteristics might indicate why the WRAP intervention did not enhance personal recovery in the study of O'Keeffe et al. (2015) while it did improve personal recovery in the study of Cook, Copeland, Floyd, et al. (2012). Although the findings regarding the effectiveness of WRAP in the current review are inconsistent, a recent meta-analysis found a small significant effect of WRAP on self-perceived recovery outcomes (Canacott et al., 2019). This indicates that WRAP might be a promising treatment to enhance personal recovery in people with SMI (Canacott et al., 2019). However, based on the mixed findings from the current study, future research might further investigate under which circumstances WRAP is effective and which factors influence the effectiveness of WRAP.

Whereas the study of Beentjes et al. (2018) showed that the educational based intervention E-IMR might be effective in improving personal recovery in individuals suffering from SMI on the short-term, the included educational based IMR intervention in this systematic review appeared to be ineffective (Jensen et al., 2019). This ineffectiveness might occur because the main focus of IMR was diagnosis and treatment, instead of the personal recovery process itself (Slade et al., 2014). However, another pilot study by Mueser et al. (2006) concluded that IMR improved personal recovery since participants showed an improvement in functioning. In their study, the sub-categories no symptom domination, hope, and goal orientation were effective in particular (Mueser et al., 2006). It should be noted though, that the study of Mueser et al. (2006) did not use an RCT but only an intervention group. Therefore, effects of the intervention could not be compared to a control group. Additionally, another study of Hasson-Ohayon, Roe, and Kravetz (2007) found that, compared with a control group that received treatment as usual, participants in an IMR group showed an improved level of personal recovery and an increase in understanding illness. Furthermore, another study by Levitt et al. (2009) showed that IMR was effective in improving symptom severity and psychosocial functioning.

A possible explanation for the ineffective intervention in the study by Jensen et al. (2019) might be the fidelity rates of the outcome assessors and treatment deliverers (Garber-Epstein, Zisman-Ilani, Levine, & Roe, 2013). A high fidelity rate indicates that the outcome assessors and treatment deliverers are trained well and that they can practice IMR coherently. This can lead to positive outcomes since the outcome assessor or treatment deliverer understand the participants better and are, therefore, able to develop a positive relationship with the participants that leads to a positive chance in the participants' understanding of their SMI and their achievement of their personal recovery goals (Garber-Epstein et al., 2013). However, the included study of Jensen et al. (2019) presented high fidelity rates on all items,

except for the item regarding the concernedness of the participants' close ones. In addition, the fidelity assessment of the included study by Jensen et al. (2019) did not entail the IMR treatment integrity scale (IT-IS). This scale is used as a method to calculate the skills of the outcome assessor and treatment deliverer to the usage of IMR at institutional level by the General Organizational Index (GOI-index) (Jensen et al., 2019). For future research, it might be interesting to investigate the effect of fidelity rates on the effectiveness of IMR. In sum, findings from the current review regarding the effectiveness of IMR are not in line with prior studies suggesting the IMR might be effective to improve recovery outcomes. One possible explanation for this might be that the outcome assessors and treatment deliverers in the study by Jensen et al. (2019) were not as trained as outcome assessors and treatment deliverers in other IMR interventions but since the study by Jensen et al. (2019) did not include the IMR treatment integrity scale (IT-IS), this remains unclear.

Moreover, the ACT+IMR intervention by Morse et al. (2020), the CARe intervention by Bitter et al. (2017) and the Living Well intervention of Goldberg et al. (2013) appeared to be ineffective as well. Reasons why these interventions appeared to be ineffective might be because of relatively small sample sizes, and not blinding the treatment deliverers and the outcome assessors in these studies (Bitter et al., 2017; Goldberg et al., 2013; Morse et al., 2020). When looking at the ACT+IMR intervention, another study found that ACT is effective in reducing hospitalization but personal recovery did not improve (Marshall & Lockwood, 2000). This is in line with another study of Salyers et al. (2010), who found that the ACT+IMR does not enhance personal recovery. Also, the CARe intervention showed a less significant effect at follow-up compared with at post-test, which can indicate that the CARe intervention needs more time to be an effective intervention for individuals suffering from SMI (Bitter et al., 2017). The Living Well intervention study, on the other side, used a

short follow-up period that could have led to an ineffective result as well (Goldberg et al., 2013).

Implications

The findings of this review have several implications for research and practice. When looking at research implications, the current review found that the main knowledge gaps about personal recovery interventions have been identified as the need for more information regarding the characteristics of effective personal recovery interventions and the quality of these interventions. Another study found that recovery is ineffective if case-management, skills training, medications, and other forms of clinical outcomes are labelled as recovery-oriented (Drake & Whitley, 2014). This study concluded that clinical outcomes are seen as core aspects of recovery, while designing and implementing mental health services that support individuals suffering from SMI in their financial, social and personal development so that these individuals suffering from SMI can have an education, have a job, live independently, have social relationships, and can self-manage their SMI are more effective in enhancing personal recovery (Drake & Whitley, 2014). So, to support personal recovery, mental health systems should embrace hope and belief in clients, enhance self-determination skills and develop social relationships besides focussing on clinical outcomes during treatment (Slade et al., 2014). This is in line with the results of this systematic review, which showed that the effective personal recovery interventions were educational and supportive interventions that enabled clients to improve their belief in oneself, increase their level of hope, build social relationships, achieve their personal goals, and being able to manage their SMI by themselves. While, on the other hand, the ineffective interventions for improving personal recovery in individuals suffering from SMI, focused mainly on clinical outcomes. This implies that including educational and supportive elements in personal recovery interventions in the future, the effectiveness of these interventions might improve.

Furthermore, the overall quality score of the included studies was 10.10, indicating that the overall quality of the included studies appeared to be good. Studies that scored a poor or a fair score often did not conceal allocation to treatment groups, include treatment groups that were similar at baseline, blind the participants, treatment deliverers and outcome assessors, treat treatment groups identically other than the intervention of interest, and/ or did not include follow-up. From these studies with a poor to fair quality score, none of them did conceal allocation to treatment groups, and none of them did blind the participants, treatment deliverers and outcome assessors towards the treatment assignment. Therefore, a recommendation for future studies would be to conceal allocation to treatment groups and to blind the participants, treatment deliverers and outcome assessors to enhance the quality of the studies.

Limitations

A limitation of this systematic review is that, during the literature search, the screening of the title, abstracts and full-text has been done by one person only. Therefore, the inter-rater reliability could not be checked during screening phases of the review. Another limitation of this systematic review is that only studies from 2010 till 2020 were included in the literature search, which can cause that this systematic review does not entail all interventions that focussed on personal recovery in SMI. Additionally, this systematic review only focused on RCTs, which has the advantage that it is considered as the most recent, and golden standard of experimental research. By using RCTs, causation can be estimated and treatment assignments can be executed in a controlled way. However, by using RCTs only, studies might have been missed that also included information about the effect of psychological interventions to improve personal recovery. Therefore, the current review does not provide a complete picture of all intervention studies that were conducted in this field.

Conclusion

In conclusion, this systematic review showed mixed findings regarding the effectiveness of psychological intervention to enhance personal recovery. The findings suggest that psychological interventions that focus on peer support and education might be especially effective in enhancing personal recovery in individuals suffering from SMI. However, due to the limitations of the current review, future research is necessary to research the effectiveness of psychological interventions for personal recovery more elaborately. This can be done by letting two people conduct the literature search instead of one person alone, including different designs instead of RCTs only, and by not using a specific timeframe for articles to be included. Also, concealing allocation to treatment groups and blinding participants, treatment deliverers and outcome assessors might enhance the quality of studies in the future.

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Appendix 1

Search strategy

Pubmed

(((recover*[Title/Abstract]) AND (personal[Title/Abstract] OR subjective[Title/Abstract])) OR ((“recovery-oriented”[Title/Abstract] OR “recovery-focused”[Title/Abstract])) OR ((("Psychiatric Rehabilitation" OR "Mental Health Rehabilitation" OR "Psychosocial Rehabilitation"[MeSH Terms])))

AND

(("severe mental illness"[Title/Abstract] OR "severe mental disorder"[Title/Abstract] OR "serious mental illness"[Title/Abstract] OR "serious mental disorder"[Title/Abstract] OR "bipolar disorder"[Title/Abstract] OR "delusional disorder"[Title/Abstract] OR "major depressive disorder"[Title/Abstract] OR “depressive disorder” [Title/Abstract] OR depression [Title/Abstract] OR schizophrenia[Title/Abstract] OR manic[Title/Abstract] OR manic-depressive[Title/Abstract] OR "paranoid disorder"[Title/Abstract] OR "paranoid disorder"[Title/Abstract] OR psychoses[Title/Abstract] OR psychosis[Title/Abstract] OR "psychotic disorder*"[Title/Abstract] OR "schizoaffective disorder"[Title/Abstract] OR schizophreniform[Title/Abstract] OR “eating disorder”[Title/Abstract] OR “binge-eating disorder”[Title/Abstract] OR “anorexia nervosa”[Title/Abstract] OR “personality disorder”[Title/Abstract])))

AND

((correlat*[Title/Abstract] OR associat*[Title/Abstract] OR relat*[Title/Abstract] OR predict*[Title/Abstract] OR determinant[Title/Abstract] OR impact[Title/Abstract] OR evaluat*[Title/Abstract] OR efficacy[Title/Abstract] OR effect*[Title/Abstract] OR intervention[Title/Abstract] OR therap*[Title/Abstract] OR program[Title/Abstract] OR exercise[Title/Abstract]))

PsycINFO

((recover* AND (personal OR subjective)) OR (recovery-oriented OR recovery-focused))

OR

SU “Psychosocial rehabilitation”

AND

("severe mental illness" OR "severe mental disorder" OR "serious mental illness" OR "serious mental disorder" OR "bipolar disorder" OR "delusional disorder" OR "major depressive disorder" OR “depressive disorder” OR depression OR schizophrenia OR manic OR manic-depressive OR "paranoid disorder" OR "paranoid disorder" OR psychoses OR psychosis OR "psychotic disorder*" OR "schizoaffective disorder" OR schizophreniform OR “eating disorder” or “binge-eating disorder” OR “anorexia nervosa” OR “personality disorder”)

AND

(correlat* OR associat* OR relat* OR predict* OR determinant OR impact OR evaluat* OR efficacy OR effect* OR intervention OR therap* OR program OR exercise)

Web of science (core collection)

TS=((recover* AND (personal OR subjective)) OR (recovery-oriented OR recovery-focused))

AND

TS=("severe mental illness" OR "severe mental disorder" OR "serious mental illness" OR "serious mental disorder" OR "bipolar disorder" OR "delusional disorder" OR "major depressive disorder" OR “depressive disorder” OR depression OR schizophrenia OR manic OR manic-depressive OR "paranoid disorder" OR "paranoid disorder" OR psychoses OR

psychosis OR "psychotic disorder*" OR "schizoaffective disorder" OR schizophreniform OR

“eating disorder” or “binge-eating disorder” OR “anorexia nervosa” OR “personality

disorder”)

AND

TS=(correlat* OR associat* OR relat* OR predict* OR determinant OR impact OR evaluat*

OR efficacy OR effect* OR intervention OR therap* OR program OR exercise)