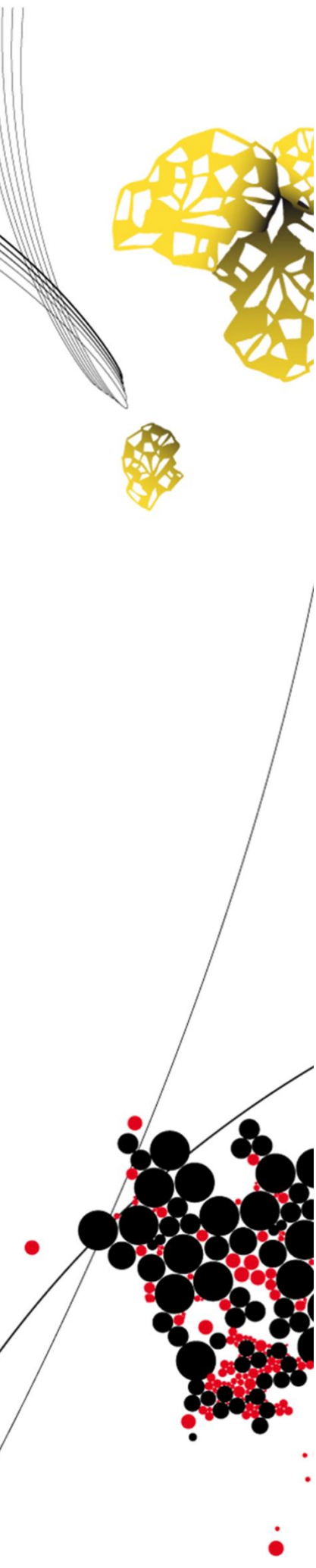

UNIVERSITY OF TWENTE.

Faculty of Behavioral, Management and Social Sciences (BMS)

Personal recovery measurements in studies with bipolar disorder: a systematic review

Julian Möllers
M.Sc. Thesis
August 2018

Supervisors:
Jannis T. Kraiss, M.Sc.
dr. Peter M. ten Klooster

Behavioral, Management and Social Sciences
Positive Psychology and Technology (PPT)
University of Twente
P.O. Box 217
7500 AE Enschede
The Netherlands

Abstract

Introduction: Bipolar disorder (BD) is a severe mood disorder which affects 1.3% of all Dutch people in their lives (1% - 2% of the people worldwide). The concept of personal recovery is getting more and more attention when it comes to mental health. Slade et al. (2011) have developed a framework that includes the processes of personal recovery. They found that *connectedness, hope and optimism about the future, identity, meaning in life* and *empowerment* (CHIME) were the processes that play an important role in personal recovery. This review aims to identify experimental and observational studies with BD patients, which used personal recovery measurements.

Methods: In this systematic review, the databases PsycINFO and Scopus were searched for experimental and observational studies that measure at least one of the personal recovery processes in patients with BD. The selected studies were checked for quality. Furthermore, the characteristics of the populations and the interventions in the studies are discussed.

Results: A total of 759 studies was identified in the databases, of which nine measure at least one process of CHIME and therefore are included in this review. The quality of the studies is predominantly low. Most studies measure connectedness as a recovery process (N = 7). Identity is measured in only four studies.

Discussion: The main findings are that most of the identified studies do not use a questionnaire, which is specifically developed to measure personal recovery. Two of the interventions call themselves a recovery-focused intervention but measure at least one or two of the processes of Slade et al. (2011). The process connectedness was measured the most and was often operationalized with support from others.

Samenvatting

Inleiding: Bipolaire stoornis (BD) is een ernstige stemmingsstoornis die 1,3% van alle Nederlanders in hun leven treft (1% - 2% van de mensen wereldwijd). Het concept van persoonlijk herstel krijgt steeds meer aandacht als het gaat om geestelijke gezondheid. Slade et al. (2011) hebben een framework ontwikkeld dat de processen van persoonlijk herstel omvat. Ze vonden dat *connectedness, hope and optimism about the future, identity, meaning in life* and *empowerment* (CHIME) de processen waren die een belangrijke rol spelen in persoonlijk herstel. Deze review worden experimentele en observationele studies met BD-patiënten identificeert, waarbij persoonlijke herstelmetingen werden gebruikt.

Methoden: In deze systematische review werden de databases PsycINFO en Scopus opgezocht voor experimentele en observationele studies die ten minste een van de persoonlijke herstelprocessen bij patiënten met BD meten. De geselecteerde studies werden gecontroleerd op kwaliteit. Verder worden de kenmerken van de populaties en de interventies in de studies besproken.

Resultaten: In de databases zijn in totaal 759 studies geïdentificeerd, waarvan er negen minstens één proces van CHIME meten en daarom in deze review zijn opgenomen. De kwaliteit van de studies is overwegend laag. De meeste studies meten verbondenheid als een herstelproces (N = 7). Identiteit wordt gemeten in slechts vier studies.

Discussie: De belangrijkste bevindingen zijn dat de meeste van de geïdentificeerde onderzoeken geen vragenlijst gebruiken, die specifiek is ontwikkeld om persoonlijk herstel te meten. Twee van de interventies noemen zichzelf een op herstel gerichte interventie, maar meten alleen één of twee van de processen van Slade et al. (2011). Het proces van verbondenheid werd het meest gemeten en werd vaak geoperationaliseerd met ondersteuning van anderen.

Inhalt

Introduction

1.1 Bipolar spectrum disorders

*Bipolar disord*er (BD) is characterized by extreme mood changes. Patients are depressed and at a later moment of their life manic or hypomanic. The order of the mood changes is variable. This disorder refers to high spirits, increased drive and activity (hypomania or mania), and later of precedent lower mood and reduced drive and activity (depression). The changes can occur rapidly, which means within hours (ultra-rapid cycling) or over years. BD is characterized by at least two episodes in which the mood and activity level of the person affected are clearly disturbed. Repeated hypomanic or manic episodes are also classified as BD (Grauber, 2014).

There are two types of BD. The first and more pronounced type is *bipolar disorder type 1*. In this type, the patient fulfills the criteria for at least one manic and one depressive episode in his or her life. In *bipolar disorder type 2*, the patient also meets the criteria for at least one major depressive episode in his or her life, but not a full-distinct manic episode. If only one hypomanic episode is diagnosed, it is type 2. BD mostly starts in early life till the twenties (Goodwin et al., 2008). The high level of psychological strain and its chronic nature leads BD to be one of the leading reasons of disability worldwide (Murray & Lopez, 1997; Saraceno, 2002). BD is included in the F3 category for affective disorders in the International Classification of Diseases-10 (ICD-10) and occurs in 1% to 2% of the world population (Fajutrao, Conway, Endersby & MacLeod, 2009; Pini, De Queiroz, Pagnin, Pezawas, Angst, Cassano & Wittchen, 2005; Waraich, Goldner, Somers, & Hsu, 2004). The lifetime prevalence in the Netherlands is 1.2% for men and 1.4% for women. The total lifetime prevalence in the Netherlands is 1.3%. 88.400 inhabitants were diagnosed with bipolar disorder in the Netherlands in 2009 (De Graaf, Ten Have & van Dorsselaer, 2010).

The best-studied and tested method to treat BD is cognitive behavioral therapy. This therapy uses methods that are essential to treat bipolar disorder. These include psychoeducation, mood monitoring, activity activation, suicide

prevention and problem solving strategies (Basco & Rush, 1996; Lam, Jones, Bright & Hayward, 1999; Newman, Leahy, Beck, Reilly-Harrington & Gyulai, 2001). Bipolar disorder can also be treated with medication. For this disorder mood stabilizers are prescribed. The most common are lithium, quetipapine and lamotrigine.

Patients with BD have an increased risk of losing their jobs, being divorced, having financial problems, and being delinquent. In addition, the entire family environment often suffers from heavy stress caused by the attempt to cope with the volatility of mood (Miklowitz, Goldstein, Nuechterlein, Snyder & Mintz, 1988; Miklowitz, 2000).

1.2 Personal recovery

Beside clinical and functional recovery, it becomes increasingly important to focus on personal recovery when people recover from mental illnesses. Personal recovery is defined as "*a deeply personal, unique process of changing one's attitudes, values, feelings, goals, skills and/or roles. It is a way of living a satisfying, hopeful, and contributing life even within the limitations caused by illness*" (Anthony, 1993). The definition of personal recovery is in contrast with clinical recovery which refers to the importance of symptomatology, remission of the symptoms and functional improvements. Remission is achieved when symptoms are so low in intensity that the behavior of the patients is no longer significantly affected (Andreasen, Carpenter, Kane, Lasser, Marder & Weinberger, 2005).

Due to this definition personal recovery is more than only the clinical recovery from the mental illness itself. It adds components of non-physical aspects like behavior, feelings and thoughts. Even if a person is clinically recovered, all the negative side effects of the illness can still be present such as unemployment, loss of social contacts/activities, iatrogenic effects of the treatment, dealing with the stigmata of the illness and many more.

Every person can be confronted with critical life events, in which he or she has to recover from such as death of a loved person, divorce or illness. Successful recovery does not mean the situation has changed. Successful recovery means the person has changed and the meaning to the situation has changed for the person. The person's attention is no longer on the situation. It is more focused on possibilities and the future (Anthony, 1991).

Slade, Leamy, Bird, Boutillier and Williams (2011) conducted a systematic review and narrative synthesis of personal recovery in mental health. They developed a conceptual framework for personal recovery, which contains the recovery journey, recovery processes and recovery stages. They found five processes which are important for personal recovery. These processes include *connectedness, hope and optimism about the future, identity, meaning in life* and *empowerment* and are described in the CHIME framework of personal recovery. (1) Connectedness refers to support from the peer-groups or from others, relationships and to feel part of the community. (2) Hope and optimism about the future refers to a positive belief of recovery, the motivation to change the situation, relationships which are hope giving and inspiring, to have dreams and aspirations and to think positive. (3) Identity refers to redefining your own identity in a positive sense and to overcome stigmatizations. (4) Meaning in life refers to spirituality, the quality of life, to have a meaningful life and social roles and social goals, to regenerate the life and the meaning of the mental illness experiences. (5) Empowerment refers to personal responsibility, the control over life and to focusing upon strengths.

In a later systematic review of Slade, Shanks, William, Bird and Le Boutillier (2013), twelve measures were identified that were available to assess personal recovery. These measures are: Illness Management and Recovery scale, Maryland Assessment of Recovery, Mental Health Recovery Measure, Psychosis recovery Inventory, Questionnaire About the Process of Recovery, Recovery Assessment Scale, Recovery Markers Questionnaire, Recovery process Inventory, recovery Star, Self-Identified Stage of Recovery, Short Interview to

Assess Stages of Recovery and Stages of Recovery Instrument (for a further description of these measures, see Slade et al., 2013). It was found that not all measures assess all CHIME recovery processes. Only seven out of the twelve measures completely assess all recovery processes from the CHIME framework. Two of the measures contain only two of the five recovery processes. These findings show that not all measures are suitable to measure all of the CHIME framework recovery processes in one measurement.

1.3 Aim

Personal recovery gets more and more attention when it comes to mental illness. Since the development of the conceptual framework and the development of questionnaires on personal recovery, it remains unknown in what extent experimental and observational studies with patients with bipolar disorder pay attention to this recovery process. Although some studies indicate the positive connection between the CHIME recovery processes and mental health, it is unknown how much current studies pay attention to these processes (Dodd, Mezes, Lobban & Jones, 2017).

The goal of this study is to give an overview on how often personal recovery is measured in interventions with BD patients and what type of interventions use personal recovery as outcome measurement. In accordance to Slade et al. (2013), we compare the CHIME recovery processes in the studies and examine which of them are used in the studies. We want to find out if there are processes that receive more attention. This leads to the following research questions.

1.4 Research questions

(1) How many studies for people with BD integrate personal recovery measurement and what are the characteristics of these studies?
(2) What are the characteristics of the included interventions?
(3) Which recovery processes are measured in the included studies?

(4) How often are the processes from the CHIME framework measured in the included studies?

Methods

This study was conducted by using a search strategy that is shown in figure 1.

2.1 Search strategy

The literature search was conducted in two databases: PsycINFO and Scopus. The first search was conducted on 4. July, 2018. The terms which are used are “bipolar disorder” OR “bipolar”, “personal recovery” OR “recovery” and “trial” OR “intervention” OR “rct” OR "randomized controlled trial" OR “treatment” OR “effect” OR “efficacy”. Three filters were used (English, journal articles, full text). The complete search strategies for the two databases can be found in the appendix.

2.2 Selection of studies

After searching in the databases, all duplicates were removed and the titles of the remaining studies were screened (n=759). Studies that were not suitable based on the title were removed. These studies were removed if they indicate interventions concerning a drug treatment, there is no BD or there is no intervention. The abstracts of the remaining articles were read (n=50). The following in- and exclusion criteria were used to assess the eligibility of full-text articles. Studies were included, if they (1) include participants with BD, (2) measure a process of the CHIME framework and (3) assess the effectiveness of a psychological treatment. It did not matter which type of intervention was used. It can be any form of psychotherapy. With regard to the second inclusion criteria we know questionnaires that specifically measure personal recovery (Slade et al., 2013). It may be that since 2013 more questionnaires have been added. The study must at least contain one measure from Slade et al. (2013) or must contain a measure which is in line with the CHIME framework proposed by Slade et al.

(2011). Whether the measure is in line with the idea of personal recovery is subjectively assessed by the author.

2.3 Data extraction

For each study, the following data was extracted: For the (1) Population characteristics, including the first author and year of publication, country, population, gender and age. We also examined at the (2) Intervention features, including type of intervention, number of sessions and duration (in weeks). (3) Methodological features, which are extracted are the type of control group, measurement moments (before, after, follow-up) and outcome measures. At the end, the main results of the studies are summarized.

At first the extracted interventions will be further described in terms of mean age, number of participants, intervention, duration of treatment and number of sessions to give an overview of the identified interventions.
The characteristics of the studies are summarized in a table (Table 1). First, we looked at how many studies have met the criteria. The studies were described to see similarities and differences. We compared which characteristics the participants had and which intervention was used. After we had examined the studies, we compared the measurement results. First, we looked at which CHIME framework process was measured the most. In order to do so, a table is ranked from most to fewest measurements.

2.4 Quality assessment

The quality of the included studies was assessed on the basis of the *Jadad scale* (Jadad, Moore, Carroll, Jenkinson, Reynolds, Gavaghan & McQuay, 1996) and the *Cochrane Collaboration Tool for Risk Distortion Assessment* (Higgins, Altman & Sterne, 2011). The following aspects were evaluated as criteria for the quality of the studies: (1) Sequence generation refers to the method which is used to generate the allocation sequence. It will be judged if the method should produce

comparable groups. (2) Allocation concealment refers to the method which is used to conceal the allocation sequence. It will be judged if the method for intervention allocation could have been foreseen in advance of, or during enrolment. (3) Blinding refers to the measures, which are used that the patients and clinicians do not know, which intervention the patients are receiving. (4) Clear inclusion and exclusion criteria refers to the characteristics of the patients, which are represented in the intervention. It will be judged if the criteria was sufficiently described. (5) Power calculation refers to the sample size of the study. It will be judge if the sample size was justified through an adequate power analysis. (6) Description of the intervention refers to a clear description about goals and methods of the intervention. (7) Follow-up refers to measures at a later moment after the study. It will be judged, if the study used one or more follow-up measures after the study.

For each aspect, a point was awarded for the individual studies. When all seven aspects were met, the quality of the study was rated high; if six or five were met, the quality was judged medium and low if the study satisfied four or less aspects.

Results

3.1 Methodological quality of the studies

Table 1 gives an overview of the methodological quality of the selected studies. The quality of the studies ranges from 2 to 3. All studies have a low quality (n=9, Deckersbach, 2012; Ferguson, 2009; Starnino, 2010; Yanos, 2001; Murray, 2015; Lai, 2015 & Heatherington, 2018) there is no study of high quality. The number of studies of low quality can be explained, because there are only two randomized controlled trials (RCT) in the included studies. The criterion clear inclusion and exclusion criteria of participants are fulfilled of all selected studies. Also the criterion description of the intervention is fulfilled by all studies. The criterion follow up is fulfilled in six studies (Cook, 2008; Deckersbach, 2012; Ferguson, 2009; Heatherington, 2018; Jones, 2015 and Murray, 2015). In none of the nine studies,

the sample size was determined on the basis of a power analysis. The criterions sequence generation, allocation concealment and blinding are in no studies fulfilled. These are also the criterions, which are scored the worst.

Table 1.
Methodological quality of the studies.

First author (year)	1. Sequence generation	2. Allocation concealment	3. Blinding	4. Clear inclusion and exclusion criteria of participants	5. Power calculation	6. Description of the intervention	7. Follow up	Score
Cook (2008)	No	No	No	Yes	No	Yes	Yes	3
Deckersbach (2012)	No	No	No	Yes	No	Yes	Yes	3
Ferguson (2009)	No	No	No	Yes	No	Yes	Yes	3
Heatherington (2018)	No	No	No	Yes	No	Yes	Yes	3
Jones (2015)	No	No	No	Yes	No	Yes	Yes	3
Lai (2015)	No	No	No	Yes	No	Yes	No	2
Murray (2015)	No	No	No	Yes	No	Yes	Yes	3
Starnino (2010)	No	No	No	Yes	No	Yes	No	2
Yanos (2001)	No	No	No	Yes	No	Yes	No	2

3.2 Selection of the studies

Figure 1 shows the flowchart of the selection process. The electronic databases Scopus and PsycINFO produced a total of 759 articles after duplicates were removed. After reviewing the titles of the articles, there were 50 potentially eligible records of which the abstracts were read. Based on the abstracts, 18 articles were selected for full-text screening. After reading the full-texts, 9 articles were included in this review.

3.3 Description of included studies

Five studies were conducted in the United States, two in the United Kingdom and one each in China and Australia. All characteristic of the included studies are presented in Table 2.

3.3.1 Population characteristics

The total number of participants of the studies comprised 1.040. In all studies, the majority of participants is female, except for three studies (n=659, 63.4%; Ferguson, 2009; Heatherington, 2018; Lai, 2015). The percentage of females with BD (64.2%) is higher than males with BD (36.8%). All participants are adults between 18 and 65 years. The mean age and standard deviation were calculated by taking account to the number of participants in the studies. Studies with more participants were weighted more. The mean age of the participants is 39.3. The standard deviation in the studies is 9.92. Four studies additionally include participants with schizoaffective disorder or schizophrenia (n = 886; Cook, 2008; Heatherington, 2018; Starnino, 2010; Lai, 2015). Murray (2015) includes only patients in a late BD stage (n=26). In one study, the participants are male inmates of a forensic institution. (n=14; Ferguson, 2009).

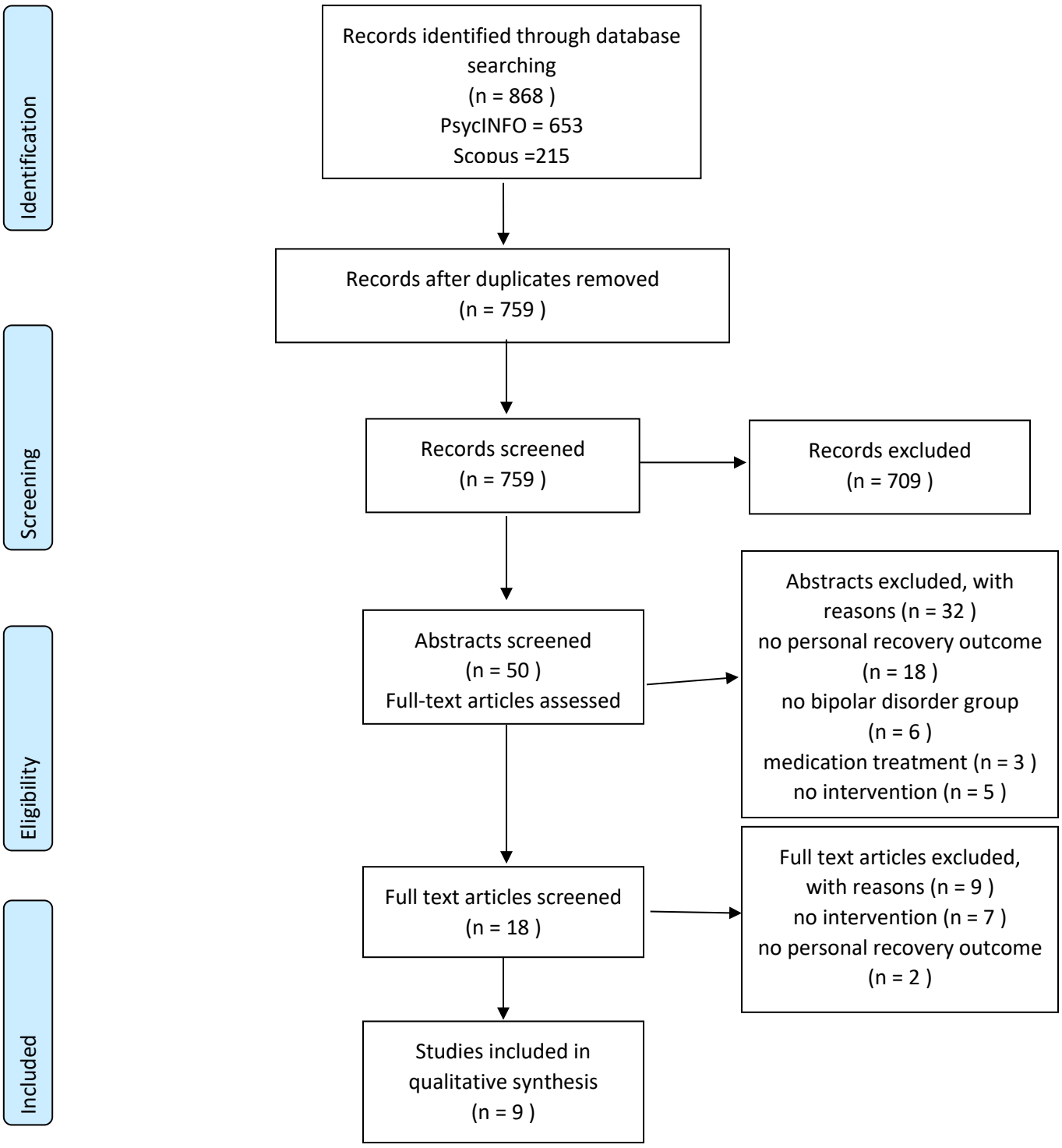

Fig. 1. Flowchart of the study selection process.

Table 2.
Characteristics of the studies.

First author (publication; country)	Type population	% F	Mean age (SD)	Type intervention (n)	Sessions, duration in weeks	Type control group (n)	Measurement moments	Outcome measures	Main results
Cook (2008; USA)	Patients with mood disorder or schizophrenia (n=519)	65.9 %	45.8 (9.88)	Wellness Recovery Action Planning (WRAP)	8 sessions, 8 weeks	TAU	Pre, post, 6 month follow-up	HS	Participants reported greater improvement in hopefulness.
Deckersbach (2012; USA)	Patients with BD (n=12)	66.6%	38.7 (9.5)	CBT and MBSR	12 sessions, 12 weeks	NA	Pre, post, 3 month follow-up	PWBS	There was an increase in purpose of life, positive relations, from pre- to post test to follow-up. Self-acceptance increase from pre to post test, but not from post test to follow-up.
Heatherington (2018; USA)	Patients with BD, depression and schizophrenia (n=259)	32%	29.49 (9.08)	Gould Farm program (recovery focused therapy)	NR	NA	Pre, post 6, 18 and 36 month follow-up	Structured interview, QoL	Empowerment and quality of life were higher after the intervention. The participants had a greater social network after the treatment.
Ferguson (2009; UK)	Forensic patients with BD (n=14)	0%	40.1 (10.8)	Well-being therapy	6 sessions	NA	Pre. Post, 2 month follow-up	SWLS, FTT	Participants reported reduced hopelessness and more positive thinking about the future.
Jones (2015; UK)	Patients with BD (n=67)	70%	39.9 (10.4)	recovery-focused CBT	14 sessions, 24 weeks	TAU	Pre, 6-month follow up, 12 month follow up	PSP, BRQ QoL.BD	Social functioning was improved in recovery-focused CGT compared with TAU.
Lai (2015; CH)	Patients with schizophrenia, bipolar disorder, depression or adjustment disorder (N=63)	34,2%	NR 18-60 years old	recovery-based occupational therapy program	15 sessions, 3 weeks	NA	Pre, post	CHS, CIMRS	The participants experienced more social inclusion and increased knowledge about the illness. Females showed change in both pathway thinking and agency thinking in hope scale measure. Males only showed positive changes in pathway thinking.

First author (publication; country)	Type population	% F	Mean age (SD)	Type intervention (n)	Sessions, duration in weeks	Type control group (n)	Measurement moments	Outcome measures	Main effects
Murray (2015; AUS)	Patients being in late stage BD (n=26)	75%	46.6 (12.9)	Online mindfulness-based intervention	4 sessions, 3 weeks	NA	Pre, post	QoL.BD	Participants following the intervention had a significant higher quality of life after the intervention.
Starnino (2010; USA)	Patients with mood disorder or schizophrenia (n=45)	60 %	41.6 (10.9)	Wellness Recovery Action Planning (WRAP)	12 sessions, 12 weeks	NA	Pre, post	SHS, RMQ	Participants in WRAP experienced an increase in hope and recovery.
Yanos (2001; USA)	Patients with BD (n=35)	50%	43.37 (10.6)	Self-help service	NR	Patients who not use self-help service	Post	HHI	Participants using self-help services had more coping strategies and are better able to cope in society.

Note. AUS, Australia; BD, bipolar disorder; BRQ, Bipolar Recovery Questionnaire; CBT, cognitive behavioural therapy; CH, China; CHS, Chinese Hope Scale; CIMRS, Chinese Illness Management and Recovery Scale; F, female; FTT, Future Thinking Task; HHI, Herth Hope Index; HS, Hope Scale; MBSR, Mindfulness-based Stress Reduction; n, number; NA, not applicable; NR, not reported; SD, standard deviation; PSP, Personal and Social Functioning Scale; PWBS, Psychological Well-Being Scale; QoL, Quality of Life Scale; QoL.BD, Quality of Life in Bipolar Disorder Scale; RMQ, Recovery Markers Questionnaire; SAS, Social Adjustment Scale; SWLS, Satisfaction with Life Scale; TAU, treatment as usual; UK, United Kingdom; USA, United States of America; WRAP, Wellness Recovery Action Planning.

3.3.2 Intervention characteristics

Two of the nine interventions were a form of cognitive behavioural therapy (CBT). The first was combined with mindfulness-based cognitive therapy (Deckersbach, 2012). It included mood monitoring, problem solving, emergency planning for mood symptoms and education about BD. Added mindfulness-based elements were short body scans, breath awareness, meditation and mindfulness to routine activities. The second type of CBT had a specific recovery focus (Jones, 2015). The difference to a standard CBT is that the recovery focused CBT focuses on electing patient-focused goals in contrast to presuming a target of relapse prevention. Further it supported patients to move away from self-critical and stigmatising language. It was also open for functioning and comorbidity issues.

A second recovery-focused intervention of Lai (2015) used the Proposed Recovery Model as the basis for the intervention. This intervention promoted recovery through goal setting, positive thinking, taking control and empowering. The intervention was divided into five elements. These are (1) Hope, (2) Support and managing symptoms, (3) empowerment, (4) relationships and (5) coping. The third recovery focused intervention is called Gould Farm. The concept of this intervention was based on the CHIME framework. The intervention integrated traditional counseling services, support groups and a working program. The participants had to work for 30 hours each week. All patients rotated through the work teams that addressed their rehabilitation goals. The intervention promoted social interaction, skill building, planning activities and an integration in the community.

Two of the nine interventions were Wellness Recovery Action Planning (WRAP; Cook, 2008; Starnino, 2010). The intervention consisted of 8 to 12 weekly sessions. The intervention included group work as well as individual tasks. The intervention included seven sections. These are (1) developing personal wellness tools, (2) creating daily maintenance activities, (3) exploring of a trigger list, (4) searching for early warning signs, (5) developing a plan if things start to breaking down, (6) develop a crisis plan and (7) develop a post crisis plan. In addition to these sections, key recovery concepts were provided and the usefulness of self-help groups was explained.

In the intervention of Ferguson (2009), well-being therapy was used. The main content in this intervention was goal setting and planning training, for which every

patient had to formulate goals. The intervention included the importance of having realistic and specific plans, how to make plans and what possible obstacles are (problem-solving). The patients had to adjust their goals to make them achievable. At the end of the intervention the patients had to reflect their goals.

The mindfulness-based intervention of Murray (2015) was provided online. Video and audio segments were recorded by the clinician. The patients could watch these segments and use the tips and do the exercises. It was mindfulness-based intervention, which combined strategies and exercises of acceptance and commitment therapy (ACT) and mindfulness-based cognitive therapy (MBCT) to target emotion regulation, relationship to self and sleep quality. The intervention was divided in four modules, which are (1) introduction, (2) self-acceptance, (3) mindfulness and (4) values and goals.

One study considered the effects of self-help services (Yanos, 2001). The duration of the interventions was between 8 and 24 weeks with a session number of 6 to 14. Only one intervention was provided online (Murray, 2015). The other interventions took place face to face. For one intervention the number of sessions and the duration of the intervention is unknown (Yanos, 2001).

3.4 Outcome measures

In the identified studies, various measurements were used to measure personal recovery or processes of personal recovery. All measurements are described below.

The Hope Scale (HS) was used by Cook (2008). It measures 12 items of the patient´s level of hope. The Scale is divided in two subscales. The first one measures agency (goal directed energy) and the second pathways (planning to accomplish the goals). The items are answered by using an 8 point Likert scale (“definitely false” to “definitely true”; Ng, Lo, Leung, Chan, Wong, Lam & Tsang, 2014).

The Chinese Hope Scale (CHS) was used by Lai and is the same scale like the HS. The CHS is translated in Chinese.

The Chinese Illness Management and Recovery Scale (CIMRS) was used by Lai (2015) and measures the patient’s progress towards recovery and his or her illness

management with 15 items. The items contain aspects such as knowledge about the illness and social support (Hasson-Ohayon, 2008).

The Herth Hope Index (HHI) was used by Yanos (2001) and is a 12-items self-report measure to assess positive readiness and expectations, inner sense of temporality and interconnectedness with self and others (Herth, 1992).

The Future Thinking Task (FTT) was used by Ferguson (2009) and measures negative and positive cognitions concerning the future. The participants have to think of three potential future experiences at different moments (next week, next year and the next 5 - 10 years). The participants are asked to think in two different conditions about their future. First about positive experiences (things they look forward to) and second about negative experiences (things they do not look forward to). In one minute they have to generate as many responses for both conditions. Both conditions are counterbalanced. So that a positive or negative value can be calculated.

Satisfaction with Life Scale (SWLS) was used by Ferguson (2009) and measures the well-being of the participant with five statements. It is measured on a 7-piont Likert scale (“strongly disagree” to “strongly agree”) (Diener, Emmons, Larsen & Griffen, 1985).

The Psychological Well-Being Scale (PWBS) was used by Deckersbach (2012) and is an 84-item self-reported 6-point Likert scale (“strongly agree” to “strongly disagree”). It measures six dimensions of psychological well-being (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance).

The Recovery Markers Questionnaire (RMQ) was used by Starnino (2010) and is a subscale of the Recovery Enhancing Environment Measure (REE). It is a 28-item self-reported checklist. The participant is asked to answer statements whether these are true at the moment of assessment. The questionnaire includes domains as goal-orientated thinking, self-agency, self-efficacy, symptoms, social support and basic resources (Ridgway, Press, Ratzlaff, Davidson & Rapp, 2003).

The State Hope Scale (SHS) was used by Starnino (2010) and measures six items which measure the changes of hope over time and according to life situations

(Snyder, Sympson, Ybasco, Borders, Babyak & Higgins, 1996). The SHS also comprises the two aspects of agentic and pathways thinking.

The personal and social performance scale (PSP) is a clinical interview and was used by Jones (2015). The patient is assessed in four areas (personal and social relationships, socially useful activities, self-care and disturbing and aggressive behaviours). Each area is rated on one item on a 6-point scale (absent, mild, manifest but not marked, marked, severe, or very severe; Kawata & Revicki, 2008).

The Bipolar Recovery Questionnaire (BRQ) was used by Jones (2015) and contains 36 items. Each item is rated on a visual analogue scale from 0 (disagree) to 100 (strongly agree). The total score is calculated by summing all individual scores of all items. A higher score indicates a higher personal recovery in BD (Jones et al., 2015).

The Quality of Life Scale (QoL) was used by Hertherington (2018) and is an 8-item 10-point Likert scale from 1 (very low) to 10 (very high). It measures family relationships, social relationships, community support, perceived satisfaction with independent living skills, daily structure, physical health, mental health and spirituality (Heatherington, Bonner, Rosenberg, Patterson & Linsely, 2018).

The Quality of Life in Bipolar Disorder Scale (QoL.BD) was used by Jones (2015) and Murray (205) is especially adapted for people with BD. The Scale is a 5-point Likert scale (from “strongly disagree” to “strongly agree”). The domains which are measured are physical, sleep, mood, cognition, leisure, social, spirituality, finances, household, self-esteem, independence, identity, work, and education (Michalak & Murray, 2010).

3.5 Recovery processes

The number of CHIME framework processes represented in the studies is shown in Table 3. Most of the studies measured connectedness (n = 7; Deckersbach, 2012; Ferguson, 2009; Jones, 2015; Starnino, 2010; Lai, 2015; Murray, 2015; Heatherington 2018). Empowerment was measured in six studies (Deckersbach, 2012; Ferguson, 2009; Jones, 2015; Starnino, 2010; Murray, 2015; Heatherington 2018). Meaning in life was also measured in six studies (Deckersbach, 2012; Ferguson, 2009; Jones,

2015; Starnino, 2010; Murray, 2015; Heatherington 2018). A total of five of the nine studies measured a kind of hope and optimism about the future (Cook, 2008; Ferguson, 2009; Starnino, 2010; Yanos, 2008; Lai 2015). Identity was measured in four studies (Heatherington, 2018; Murray 2015; Jones, 2015; Starnino, 2010).

Table 3.

CHIME framework processes represented in the selected studies.

CHIME framework process	Number of CHIME processes represented in included studies
Connectedness	7
Empowerment	6
Meaning in life	6
Hope and optimism	5
Identity	4

Discussion

In this systematic review, current literature was searched for studies which use personal recovery measurements in BD patients. The systematic search led to the identification of nine relevant studies, which met the inclusion criteria for this systematic review. The total number of participants in the studies is 1.040. The studies include 63.4% women. This is in agreement with Fellinger, Waldhör, Blüml, Williams & Vyssoki (2018) who analysed 60.607 BD patients. They found that 64.2% of all BD patients are women. This means that the gender distribution in this review corresponds to the normal distribution of patients with BD.

This review is based on the CHIME framework of Slade et al. (2011). We examined which recovery processes were included in the selected studies and how often the different processes were used. The processes of the CHIME framework are differently represented in the studies. Connectedness is the most measured process (n=7) and identity the process which was measured the least (n=4).

4.1 Main findings

Especially connectedness was often measured in the studies. Connectedness was often operationalized with support from others and peer support. The Gould Farm intervention also operationalized connectedness as patients being part of the community. In the study of Yanos (2001), participants with more social relationships had more coping mechanisms. This finding corresponds to Slade et al. (2011). They examined with which subcategories the CHIME processes were operationalized. The subcategory support from others was the most operationalized with connectedness in Slade et al. (2011). Also in this review connectedness was the most operationalized with support from others. Several studies have shown the positive effect of social support in patients with BD (Warren, Fowler, Speed & Walsh, 2018; Johnson, Lundstrom, Aberg-Wistedt & Mathe, 2003; Johnson, Winett, Meyer, Greenhouse & Miller, 1999). This could be the reason for the common integration of connectedness measurements in the selected studies.

The process empowerment includes the control over one's own life and autonomy, which is also conform with Slade et al. (2011). Meaning in life was operationalized with goal setting. Most interventions used goal setting for future life to give the participants a sense in their life. The hope and optimism process was also focused on the future in the selected studies. This process was operationalized with positive expectation about future. In Slade et al. (2011) positive expectation about future was not measured often. In Slade et al (2011) quality of life was often operationalized with meaning in life. Quality in life was also promoted in the selected studies, but not as often as positive expectations about future.

An interesting finding is the operationalization of hope and optimism with goal planning and positive expectations about the future. This was different to Slade et al. (2011) who found more studies which operationalized hope and optimism with belief in possibility of recovery. Due to the fact that BD often has a chronic course (Murray & Lopez, 1997), hope in recovery is an important aspect, that is more important as good goal planning and positive expectations about the future. In a systematic study by Schiavon, Marchetti, Gurgel, Busnello & Reppold (2017) of hope in patients with chronic diseases, they found that hope for recovery is an important factor in making plans for the future.

It is striking, that the studies which were found, are predominantly of low quality. The reason for this is that only two of the nine studies are true RCT's. Only these two used control groups. Many studies are experimental or observational studies, which decreases the quality. Furthermore, no study made a power calculation to determine the required number of participants. The Jaded scale was made for medical studies and is thus very strict. For example double blinding and sequence generation can almost never be achieved in psychological trail.

Another interesting result is that Cook et al. (2008) and Lai et al. (2015) specifically call their interventions *personal recovery interventions* but measure no more than two CHIME processes. This raises the question whether these interventions are recovery-focused interventions. According to the definition by Anthony (1993) personal recovery is a deep and comprehensive process, which means restoring only one process is not enough to recover. Therefore, a recovery-focused intervention has to be the aim to improve all CHIME processes like recovery-focused CBT. Cook et al. (2008) only improved the support of others and hope and optimism in their intervention and is, according to the definition of Anthony (1993), not a recovery-focused intervention. Lai et al. (2015) tried to improve all processes of the CHIME framework in their intervention and is thus a recovery-focused intervention. A limitation of this study is that it only measured hope and optimism and ignored the other CHIME framework processes in their measurements, which made it unclear which processes have actually been improved.

4.2 Implication for practice and research

In recent years, personal recovery seems to gain more and more importance in restoring health. Even though personal recovery research is still at its beginning, it is important to have studies of high quality on it. This study gives an overview of the existing experimental and observational studies of personal recovery in BD patients. The studies in this systematic review are of low quality, so a systematic review should be repeated in a few years if there are new studies with higher quality.

It is noticeable that only one of the recovery interventions has measured all CHIME processes. Even though the contents of the interventions take account with all CHIME processes, it is advisable to measure all processes after the intervention to

identify effects. Otherwise it is unclear whether the intervention is effective for all processes. For future interventions, I recommend to measure all CHIME processes in recovery-focused interventions to determine the effectiveness.

Research has to deal more with the psychometry of personal recovery questionnaires especially for BD patients. Most questionnaires which were used to measure a CHIME process were not primarily designed to measure personal recovery, but measures still a process of Slade´s et al. (2011) CHIME framework. Until now there are only six questionnaires which measures all CHIME processes (Slade et al., 2013). The few uses of these questionnaires may be due to the fact that there are only a few questionnaires about personal recovery, which also have limitations. First of all, there are none which are specifically designed for BD patients and secondly, even the questionnaires which contain all CHIME processes have different emphases. For example, the RMQ focuses on hope and optimism and connectedness. This shows that, if all processes should be sufficiently considered, one questionnaire is not enough to measure the processes. Although general questionnaires about personal recovery have already been developed, there are no specific questionnaires that address BD in relation to personal recovery. The current literature also gives no information whether the previous questionnaires are suitable for patients with BD. The previous questionnaires should be examined for their rehabilitation and validation in relation to BD patients. If these are not sufficient, it is necessary to develop new questionnaires to be able to measure personal recovery in BD patients.

4.3 Strengths and limitations

In the studies only one questionnaire was identified in the sense of Slade et al. (2013) as a measurement of recovery. All studies used questionnaires that were subjectively rated by the author, whether they are in line with the idea of personal recovery. Due to the subjective evaluation of a single author, measurements may have been included that are not consistent with Slade et al. (2013) or were in line with the idea of personal recovery but were excluded. There were no established rules to rely on when it came to choosing suitable questionnaires for this review. During the selection process, uncertainties existed in some questionnaires, if these measured one of the CHIME processes. Rating the SWLS, PWBS and QoL took a long time. It was difficult to decide

whether these are in line with the idea of personal recovery, because they are not developed for measure a CHIME process of personal recovery. They are finally included because they measure CHIME processes, even though they were not developed for this. This makes it questionable to what extent the questionnaires really measure personal recovery.

Another limitation is the conduction of this systematic review by only one rater. According to Cuijpers (2016) the selection of studies in a systematic review should be done by at least two independent raters. It is questionable whether a second rater would have included different articles in this review. This can explain the small number of studies which are included (n=9). It is also questionable whether two rater would have found more relevant articles. A second reason for the small number of studies could be the use of only two databases. There is a probability that relevant articles are missing because they are in other databases.

One strength of this study, in contrast to Slade et al. (2013), is systematic search for relevant studies in this review. Through the systematic search, the quality of our review is higher. Biases are avoided because of the guidelines for a systematic review. Furthermore, we avoided to miss relevant articles, because we used a search string and only excluded articles with reasons.

Conclusion

Based on current knowledge, this is the first systematic review of personal recovery in BD patients. Studies were found that measured at least one of the CHIME processes. Especially connectedness was measured in most studies. Personal recovery interventions specifically targeted at BD patients are still in their infancy. Interventions that already focus on personal recovery often lack the inclusion of all CHIME processes. The lack of studies with high quality gives rise to further research in this field.

Appendix. Full electronic search strategies

Search strategy: PsycINFO (EBSCO)

("bipolar disorder" OR bipolar) AND (trial* OR intervention* OR rct OR "randomized controlled trial" OR treatment OR effect* OR efficacy) AND (“personal recovery” OR recovery)

Filters: English, journal article, linked full text

Search strategy: Scopus:

TITLE-ABS-KEY (("bipolar disorder" OR bipolar) AND (trial* OR intervention* OR rct OR "randomized controlled trial" OR treatment OR effect* OR efficacy) AND (“personal recovery” OR recovery) AND (LIMIT-TO (SUBJAREA , "PSYC"))

References

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. doi:10.1176/appi.ajp.162.3.441

Anthony, W. A. (1992). Recovery from mental illness: The new vision of services researchers. *Innovations and Research*, *1*(1), 13-14.

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. doi:10.1037/h0095655

Basco, M. R., & Rush, A. J. (2007). *Cognitive-behavioral therapy for bipolar disorder*. New York: Guilford.

Basco, M. R., & Rush, A. J. (1996.). Cognitive therapy for bipolar disorder: A therapist's guide to concepts, methods and practise. *The Guilford Press* [New York].

Cook, J. A., Copeland, M. E., Jonikas, J. A., Hamilton, M. M., Razzano, L. A., Grey, D. D., … Boyd, S. (2011). Results of a Randomized Controlled Trial of Mental Illness Self-management Using Wellness Recovery Action Planning. *Schizophrenia Bulletin*, *38*(4), 881-891. doi:10.1093/schbul/sbr012

Cuijpers, P. (2016). Meta-analyses in mental health research. A practical guide. Amsterdam, the Netherlands: Pim Cuijpers Uitgeverij

De Graaf, R., Ten Have, M., & van Dorsselaer, S. (2010). De psychische gezondheit van de Nederlande bevolking. *Nemsis-2: Opzet en eerste resultaten, Trimbos-Instituut, Utrecht.*

Deckersbach, T., Hölzel, B. K., Eisner, L. R., Stange, J. P., Peckham, A. D., Dougherty, D. D., … Nierenberg, A. A. (2011). Mindfulness-Based Cognitive

Therapy for Nonremitted Patients with Bipolar Disorder. *CNS Neuroscience & Therapeutics*, *18*(2), 133-141. doi:10.1111/j.1755-5949.2011.00236.x

Diener, E., Emmons, R.A., Larsen, R.J., & Griffen, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75.

Dodd, A. L., Mezes, B., Lobban, F., & Jones, S. H. (2017). Psychological mechanisms and the ups and downs of personal recovery in bipolar disorder. *British Journal of Clinical Psychology*, *56*(3), 310-328. doi:10.1111/bjc.12140

Fajutrao, L., Locklear, J., Priaulx, J., & Heyes, A. (2009). A systematic review of the evidence of the burden of bipolar disorder in Europe. *Clinical Practice and Epidemiology in Mental Health, 5*(1), 3. doi:10.1186/1745-0179-5-3

Fellinger, M., Waldhör, T., Blüml, V., Williams, N., & Vyssoki, B. (2018). Influence of gender on inpatient treatment for bipolar disorder: An analysis of 60,607 hospitalisations. *Journal of Affective Disorders, 225*, 104-107. doi:10.1016/j.jad.2017.08.007

Ferguson, G., Conway, C., Endersby, L., & MacLeod, A. (2009). Increasing subjective well-being in long-term forensic rehabilitation: evaluation of well-being therapy. *Journal of Forensic Psychiatry & Psychology*, *20*(6), 906-918. doi:10.1080/14789940903174121

Goodwin, G. M., Anderson, I., Arango, C., Bowden, C. L., Henry, C., Mitchell, P. B., … Wittchen, H. (2008). ECNP consensus meeting. Bipolar depression. Nice, March 2007. *European Neuropsychopharmacology*, *18*(7), 535-549. doi:10.1016/j.euroneuro.2008.03.003

Graubner, B. (2013). *ICD-10-GM 2014 Systematisches Verzeichnis: Internationale statistische Klassifikation der Krankheiten und verwandter Gesundheitsprobleme 11. Revision - German Modification Version 2014*. Köln: Deutscher Ärzte-Verlag.

Hasson-Ohayon, I., Roe, D., & Kravetz, S. (2008). The psychometric properties of the illness management and recovery scale: Client and clinician versions. *Psychiatry Research*, *160*(2), 228-235. doi:10.1016/j.psychres.2007.06.013

Heatherington, L., Bonner, B. L., Rosenberg, D., Patterson, R. D., & Linsley, J. (2018). Sustaining outcomes research in residential treatment: A 15-year study of the Gould Farm program. *Psychological Services*. doi:10.1037/ser0000253

Herth, K. (1992). Abbreviated instrument to measure hope: development and psychometric evaluation. *Journal of Advanced Nursing*, *17*(10), 1251-1259. doi:10.1111/j.1365-2648.1992.tb01843.x

Higgins, J. P. T., Altman, D. G., & Sterne, J. A. C. (2011). Assessing risk of bias in included studies. In J. P. T. Higgins, & S. Green (Eds.) Cochrane handbook for systematic reviews of interventions (5.1.0 ed.) (Available from www.cochrone-handbook.org).

Jadad, A. R., Moore, R., Carroll, D., Jenkinson, C., Reynolds, D. M., Gavaghan, D. J., & McQuay, H. J. (1996). Assessing the quality of reports of randomized clinical trials: Is blinding necessary? *Controlled Clinical Trials*, *17*(1), 1-12. doi:10.1016/0197-2456(95)00134-4

Johnson, L., Lundstrom, O., Aberg-Wistedt, A., & Mathe, A. A. (2003). Social support in bipolar disorder: its relevance to remission and relapse. *Bipolar Disorders*, *5*(2), 129-137. doi:10.1034/j.1399-5618.2003.00021.x

Johnson, S. L., Winett, C. A., Meyer, B., Greenhouse, W. J., & Miller, I. (1999). Social support and the course of bipolar disorder. *Journal of Abnormal Psychology*, *108*(4), 558-566. doi:10.1037//0021-843x.108.4.558

Jones, S. H., Smith, G., Mulligan, L. D., Lobban, F., Law, H., Dunn, G., … Morrison, A. P. (2015). Recovery-focused cognitive–behavioural therapy for recent-onset bipolar

disorder: Randomised controlled pilot trial. *British Journal of Psychiatry*, *206*(01), 58-66. doi:10.1192/bjp.bp.113.141259

Jones, S., Mulligan, L. D., Law, H., Dunn, G., Welford, M., Smith, G., & Morrison, A. P. (2012). A randomised controlled trial of recovery focused CBT for individuals with early bipolar disorder. *BMC Psychiatry*, *12*(1). doi:10.1186/1471-244x-12-204

Kawata, A. K., & Revicki, D. A. (2008). Psychometric properties of the Personal and Social Performance scale (PSP) among individuals with schizophrenia living in the community. *Quality of Life Research*, *17*(10), 1247-1256. doi:10.1007/s11136-008-9400-z

Lai FH, Chiu J C, Tse PL-C, Tsui JP, Cheung JP-H, Chen EW, Chan SH, Fan SH, Chan AS, Cheung JC, Wong SK.. (2015) Effectiveness of a Recovery Program for Chinese Psychiatric Inpatients. *International Journal of Psychosocial Rehabilitation. Vol 20 (1) 15-26*

Lam, D. H., Jones, S., Bright, J, & Hayward, R (1999). *Cognitive therapy for bipolar disorder: A therapist's guide to concepts, methods and practise*. Chichester, UK: Wiley.

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*(06), 445-452. doi:10.1192/bjp.bp.110.083733

Michalak, E. E., & Murray, G. (2010). Development of the QoL.BD: a disorder-specific scale to assess quality of life in bipolar disorder. *Bipolar Disorders*, *12*(7), 727-740. doi:10.1111/j.1399-5618.2010.00865.x

Miklowitz, D. J. (1988). Family Factors and the Course of Bipolar Affective Disorder. *Archives of General Psychiatry*, *45*(3), 225. doi:10.1001/archpsyc.1988.01800270033004

Murray, C. J., & Lopez, A. D. (1997). Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study. *The Lancet*, *349*(9063), 1436-1442. doi:10.1016/s0140-6736(96)07495-8

Murray, G., Leitan, N., Berk, M., Thomas, N., Michalak, E., Berk, L., … Kyrios, M. (2015). Online mindfulness-based intervention for late-stage bipolar disorder: pilot evidence for feasibility and effectiveness. *Journal of Affective Disorders*, *178*, 46-51. doi:10.1016/j.jad.2015.02.024

Newmnan, C. E, Leahy, R. L., Beck, A. T., Reilly-Harrington, N. A., & Gyulai, L. (2001). *Bipolar disorder: A cognitive therapy approach*. Washington, DC: American Psychological Association.

Ng, S., Lo, A., Leung, T., Chan, F., Wong, A., Lam, R. & Tsang, K. (2014). Translation and validation of the Chinese version of the Short Warwick-Edinburgh mental well-being scale for patients with mental illness in Hong Kong. *East Asian Archives of Psychiatry, 24*: 3-9.

Pini, S., De Queiroz, V., Pagnin, D., Pezawas, L., Angst, J., Cassano, G. B., & Wittchen, H. (2005). Prevalence and burden of bipolar disorders in European countries. *European Neuropsychopharmacology*, *15*(4), 425-434. doi:10.1016/j.euroneuro.2005.04.011

Ridgway, P. A., Press, A., Ratzlaff, S., Davidson, L., & Rapp, C. A. (2003). *Report on Field Testing the Recovery Enhancing Environment Measure.* Lawrence, KS: University of Kansas School of Social Welfare, Office of Mental Health Research and Training.

Saraceno, B. (2002). The WHO World Health Report 2001 on mental health. *Epidemiologia e Psichiatria Sociale*, *11*(02), 83-87. doi:10.1017/s1121189x00005546

Schiavon, C. C., Marchetti, E., Gurgel, L. G., Busnello, F. M., & Reppold, C. T. (2017). Optimism and Hope in Chronic Disease: A Systematic Review. *Frontiers in Psychology, 7.* doi:10.3389/fpsyg.2016.02022

Slade, M., Leamy, M., Bird, V., Boutillier, C. L., &. Williams, J., (2011). Conceptual framework for personal recovery in mental health: systematic review and narrative synthesis. *British Journal of Psychiatry, 199*(06), 445-452.

Slade, M., Shanks, V., William, J., Bird, V. J., & Le Boutillier, C. (2013). Measures of Personal Recovery: A Systematic Review. *Psychiatric Services, 64*(10), 974-980. doi:10.1192/bjp.bp.110.083733

Starnino, V. R., Mariscal, S., Holter, M. C., Davidson, L. J., Cook, K. S., Fukui, S., & Rapp, C. A. (2010). Outcomes of an illness self-management group using Wellness Recovery Action Planning. *Psychiatric Rehabilitation Journal, 34*(1), 57-60. doi:10.2975/34.1.2010.57.60

Snyder, C. R., Sympson, S. C., Ybasco, S. C., Borders, T. F., Babyak, M. A., & Higgins, R. L. (1996). Development and validation of the State Hope Scale. *Journal of Personality and Social Psychology, 70*(2), 321–335.

Waraich, P., Goldner, E. M., Somers, J. M., & Hsu, L. (2004). Prevalence and Incidence Studies of Mood Disorders: A Systematic Review of the Literature. *The Canadian Journal of Psychiatry*, *49*(2), 124-138. doi:10.1177/070674370404900208

Warren, C. D., Fowler, K., Speed, D., & Walsh, A. (2018). The influence of social support on psychological distress in Canadian adults with bipolar disorder. *Social Psychiatry and Psychiatric Epidemiology*, *53*(8), 815-821. doi:10.1007/s00127-018-1529-7

Yanos, P. T., Primavera, L. H., & Knight, E. L. (2001). Consumer-Run Service Participation, Recovery of Social Functioning, and the Mediating Role of Psychological Factors. *Psychiatric Services*, *52*(4), 493-500. doi:10.1176/appi.ps.52.4.493