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Frequency of personal recovery outcome measurements in clinical trials for bipolar disorder patients

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Abstract

Bipolar disorder is a severe mood disorder that has a lifetime prevalence of 1,3% in the Dutch population. BD is characterized by depressive episodes and manic episodes. Patients struggling with BD have several negative impacts on their social, work and family life. As it is a severe chronic mental illness, promoting personal recovery in the treatment of it becomes crucial. However, clinical recovery, which is focused on only reducing symptoms, is still the prominent aspect of the clinical practice and research. In order to fill this knowledge gap, this review is concerned with how many clinical trials make use of personal recovery outcomes and what the characteristics of these trials are. This was done by searching the databases Scopus and PsycINFO for those trials and then screening them in EndNote for relevance. It was found that out of 930, only six used personal recovery measures. Treatments of the studies that addressed personal recovery were either psychoeducational programs or self-management/self-monitoring interventions. All of the studies included measures of either well-being and/or quality of life and the overall functioning in the everyday life of patients. Results show that there is a lack of the use of personal recovery outcomes in clinical trials. The clinical trials that did include it did not make use of questionnaires that are in line with the CHIME framework of personal recovery. However, three of the six clinical trials used aspects of personal recovery as primary outcome measures. Although research on personal recovery in BD patients is getting attention in literature, it is not yet implemented in clinical trials. Future research should be more focused on personal recovery outcomes in clinical trials for patients with BD. Only then can patients be helped to live a meaningful and fulfilling life.

Introduction

Mental illness becomes a growing concern for nowadays society. One of those mental illnesses is bipolar disorder (BD), which is a mood disorder that is characterized by changing periods of depression and mania. The altering moods most commonly last for a longer period of time. However, the change between mood episodes can also be rapid (Davey, 2008). The Diagnostic and Statistical Manual of Mental Disorders version 5 (DSM-V; American Psychiatric Association, 2013) makes a distinction between two types of bipolar disorders: BD I, which is characterized by manic and depressive episodes and BD II which is characterized by hypomanic and depressive episodes. Periods of depression are typified by symptoms such as emotional emptiness, despair, anhedonia, overall negative worldviews or suicidal thoughts (Angeler, Allen & Persson, 2018). Mania is characterized by symptoms such as heightened energy, racing thoughts and being distracted and often comes with agitation and higher talkativeness (Angeler et al., 2018). Hypomania is a mild episode of mania, it includes the same symptoms, but they are mitigated (Davey, 2008). In the Dutch population, BD has a lifetime prevalence of 1,3% (de Graaf, ten Have, van Dorsselaer, 2010). However, actual rates might be higher due to falsely diagnosing BD II as depression (Gao, Osuch, Wammes, Theberge, Jiang, Calhoun, & Sui, 2017).

BD has several negative impacts on patients' lives. Depressive episodes, as well as manic episodes, are associated with impairments in the work life, social life, leisure activities and family responsibilities (Ketter, n.d.). Since the beginning of the disorder occurs mostly at younger ages, it often prevents the development of social functioning, proper education and early careers. Lower educational levels and higher rates of unemployment are common (Kettner, n.d.). Moreover, BD has a high comorbidity with other mental illnesses such as anxiety disorders and substance use disorders (Kettner, n.d.). Additionally, during depressive episodes, there is also a higher risk for suicide (Breznokov, 2012, p.126).

The disorder is most commonly treated with medication in combination with different forms of psychotherapy. Some common therapies are cognitive behavioural therapy (CBT), family-focused therapy, interpersonal therapy and psychoeducation (National Institute of Mental Health, n.d). However, more than half of patients with BD relapse within two years. It is also known that over 90% experience at least one additional affective episode during their lifetime (Tundo et al., 2018). However, BD treatment mostly aims at reducing symptoms, and improving the overall functioning. Focusing on reducing symptoms is also called clinical recovery. According to this, a patient is considered recovered when the amount of symptoms and the severity of the symptoms fall below the cut off scores used for diagnosing a mental illness (Fava, Ruini & Belaise, 2007). This level also has to be present for a longer period of time. However, this does not necessarily mean that the individual is symptom-free, but that the symptoms do not severely impair the everyday life of patients anymore (Fava et al., 2007). Patients struggling with severe mental illness need to learn to live with mental illness and be able to not only see their problems, but also the positive aspects of their selves and lives (Slade, 2010).

Besides clinical and functional recovery, it becomes crucial to also focus on personal recovery in the treatment of BD. A widely used definition of personal recovery is: 'Recovery is 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 with limitations caused by the illness. Recovery involves the development of new meaning and purpose in one's life as one grows beyond the catastrophic effects of mental illness' (Anthony, 1993, p. 21). The importance of learning to live with BD, adapting lifestyle fundamentals (e.g. having a healthy sleep rhythm, having daily structures, etc.) and having social contacts is receiving more and more attention (Echezarraga, Calvete, González-Pinto, & Las Hayas, 2017). Fulfilling role expectations at work or at social occasions and having interpersonal relationships are even suggested to be of greater importance than only

reducing symptoms (Gitlin, & Miklowitz, 2017). In line with this, research shows the importance of being able to live a meaningful and fulfilling life despite of the limitations caused by the illness (Veseth, Binder, Borg, & Davidson, 2016). It also indicates that it is crucial for patients to actively engage in the recovery process and not only to focus on reducing their symptoms, but also on acquiring skills to manage their everyday life (Veseth et al., 2016). An important aspect of implementing personal recovery in the treatment of BD patients is to consider when. In the first phases of treatment, patients will be confused, will deny that they have an illness and feel hopeless because they are not able to see how their situation could get better (Slade, 2009). In this phase of their progress, it is not achievable to already think about ways to live a meaningful life with their mental illness. Instead, it would be more effective to integrate personal recovery when the state of the patient is not acute anymore and a level of hopefulness is already achieved. From this point on, it can be worked on towards achieving personal recovery (Slade, 2009).

To operationalize personal recovery, the CHIME framework (Leamy, Bird, Boutillier, Williams, & Slade, 2011) was developed. It includes three central categories of recovery: characteristics of the recovery journey, the recovery process and recovery stages. The five different constructs of CHIME are connectedness, hope, identity, meaning and empowerment. Connectedness means having peer support and relationships, hope includes believing in the possibility of recovery. Identity generally includes rebuilding and redefining a positive sense of self, meaning includes for example meaning in life, having social roles and goals and having quality of life. Lastly, empowerment means having personal responsibility and control over one's life (Leamy et al., 2011). A study found that those five aspects are associated with patients' quality of life (Keetharuth et al., 2018).

In the literature, several outcome measures for personal recovery can be found. Shanks et al., (2013) systematically reviewed the literature for recovery outcomes and researched

which recovery outcome measures fit best with the CHIME framework. The Questionnaire about the Process of Recovery (QPR; Neil et al., 2009) had the strongest match with recovery. It contains two subscales: intrapersonal and interpersonal. The Recovery Assessment Scale (RAS; Corrigan, Giffort, Rashid, Leary, Okeke, 1999) is the most published recovery measure. The items are related to personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, and not being dominated by symptoms. The Stages of Recovery Instrument (STORI; Andresen, Caputi, Oades, 2006) contains 50 items that are based on the five stages of the Stage Model of Recovery (Andresen, Caputi, Oades, 2006). This model describes five stages of recovering from severe mental illness: moratorium (withdrawal, sense of loss and hopelessness), awareness (realization that not everything is lost, fulfilling life possible), preparation (discover own strengths and weaknesses, working on acquiring recovery skills), rebuilding (working towards positive self, setting goals and taking control over one's life) and growth (living a full and meaningful life, becoming and maintaining positive self) (Andresen et al., 2006). Lastly, the Maryland Assessment of Recovery (MARS; Drapalski et al., 2012) contains 25 items on six domains: self-direction or empowerment, holistic, nonlinear, strength-based, responsibility and hope. More recently, the 'Recovering Quality of Life (ReQoL)' Scale was developed in order to measure personal recovery (Keetharuth, 2018). It measures the constructs activity (meaningful and/or structured), hope, belonging and relationships, self-perception, well-being, autonomy, and physical health. Analyses showed that it is a valid and reliable measure of personal recovery (Keetharuth, 2018).

Although the importance of using and measuring personal recovery is receiving more attention, it remains unclear whether personal recovery outcomes are being used in clinical trials for people with BD, and if so, how many studies use it. The purpose of this review is to find out how frequent personal recovery outcomes are being in clinical trials for bipolar

disorder patients and what the characteristics of those studies are. This leads to the following two research questions:

- 1) How frequent are personal recovery outcome measurements included in clinical trials for BD patients?
- 2) What are the characteristics of clinical trials for patients with BD that include personal recovery outcome measurements?

Methods

Search strategy

The electronic databases Scopus and PsycINFO were searched from the year 2010 to present. The concept of personal recovery is a recent development in the field of clinical psychology and therefore, studies were only included from the year 2010 or later. For the two databases, search strings were used that included the (relating) terms bipolar disorder and clinical trials. For both databases, the search string was: bipolar disorder* AND (clinical trial* OR intervention* OR randomized controlled trial*). The search in Scopus was limited to publication year 2010-2018, psychology and social science related studies, and it was limited to the English language. The search in PsycINFO was limited to publication year 2010-2018, peer reviewed, English language, adulthood and the term bipolar disorder had to be mentioned in the title.

Selection of studies

In the programme EndNote, the studies were screened in two phases: on the title and on the abstract. In the title, the term bipolar disorder had to be mentioned and in abstract, the terms bipolar disorder and clinical trials/intervention had to be included. Then, the remaining

articles were screened on the full text. Studies were included if the clinical trials included personal recovery outcome measures. Participants of the study had to be adults and had to be diagnosed with BD. Only psychological studies, that were evaluating psychotherapy/psychological treatments, were included, which means that studies evaluating the use of medication were not included. In addition, it was assessed whether studies measured personal recovery outcomes or not. This was done by deciding whether the outcome measurements were associated with personal recovery as defined by the CHIME framework (Leamy et al., 2011). Moreover, studies were excluded if they were not in English, if they were not peer-reviewed, or if they were reviews. Before the screening of titles, duplicates were automatically removed in EndNote.

Data extraction

In order to give an answer to the purpose of this study, the number of studies that included outcomes of personal recovery was identified. Additionally, the characteristics of studies that used personal recovery outcome measures were extracted.

Quality Assessment

The quality of the clinical trials was assessed using the Jadad Scale (Jadad et al., 1996). The scale assesses whether clinical trials describe randomization and whether the method of randomization is appropriate. It is thus assessed whether the allocation sequence has been adequately generated and whether participants are randomly assigned to the control or study group and if the method used is appropriate. It also has to be concealed from participants. Moreover, the Jadad Scale assesses whether clinical trials describe the method and usage of double blinding, it is thus assessed whether or not participants and researchers are uninformed in which group the participants are. For this review, double blinding was not assessed, as psychological trials mostly do not make use of double blinding. Lastly, it is

assessed whether the trials describe drop-outs or withdrawals, thus whether participants exit the study. Possible scores of the Jadad scale range from 0 (bad quality) to 5 (good quality). As the two items for double blinding were excluded from the quality assessment, the possible scores for this study could range from 0 to 3. In this review, it was used as a descriptive measure of the quality of clinical trials.

Analysis

To be able to answer the two research questions, descriptive statistics were calculated. For the amount of the studies using personal recovery outcome measures, as well as for the characteristics of these studies frequencies were calculated.

Results

Selection of studies

In total, the database search produced 930 studies. First, duplicates were identified and removed (n=40). Then, the studies were screened for the title (removed n=842) and then for abstracts (removed n=27). For 21 studies, the full texts were reviewed and six studies were included (see figure 1). Out of these six studies, three studies tested psychoeducational treatments (Barnes, Hadzi-Pavlovic, Wilhelm, & Mitchell, 2015; de Azevedo Cardoso et al., 2014; Smith et al., 2011), two studies tested self-managing treatments (Faurholt-Jepsen et al., 2015; Todd, Jones, Hart, & Lobban, 2014; and one study tested recovery-focused cognitive behavioural therapy treatment (Jones et al., 2014).

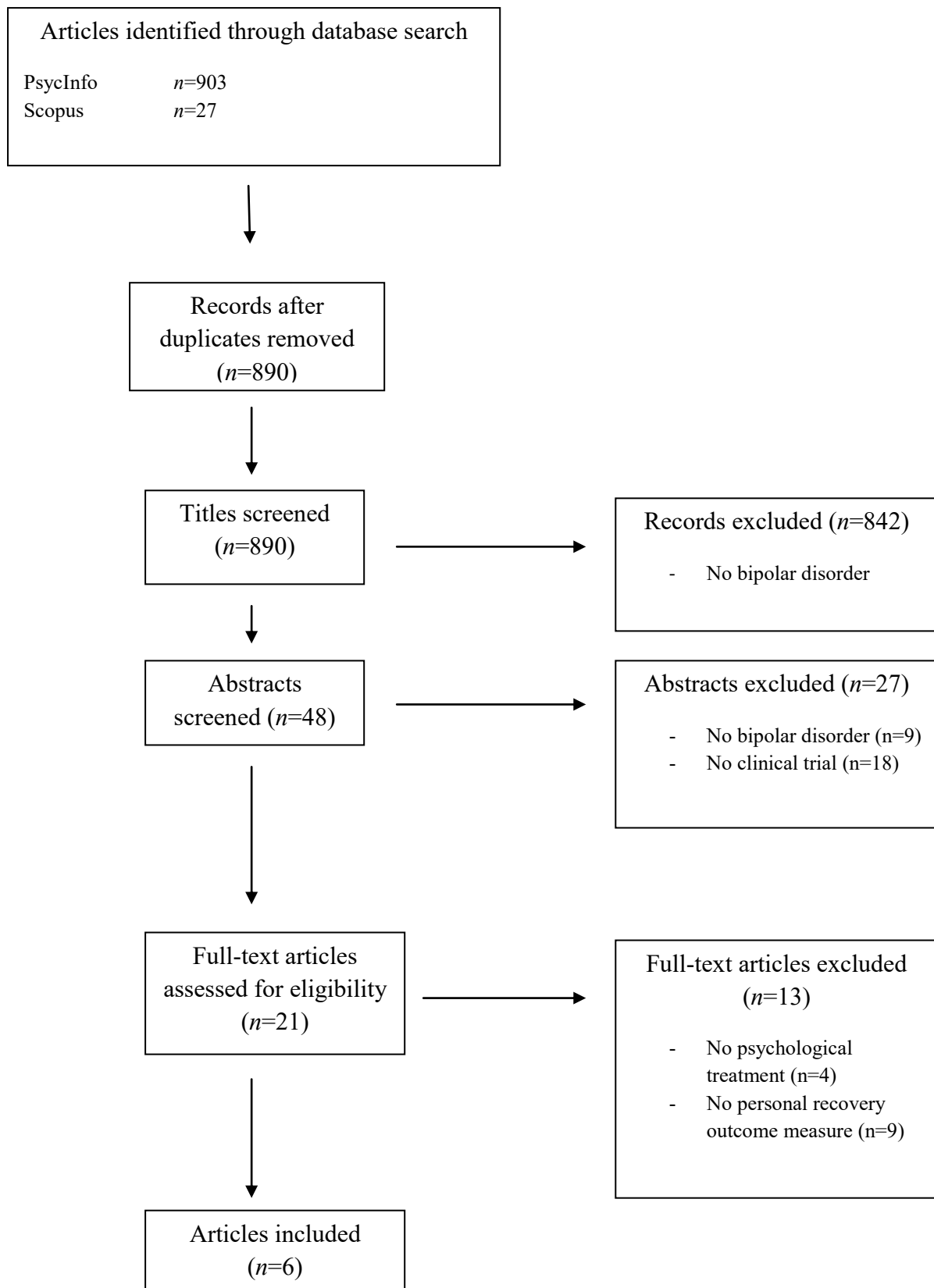


Figure 1. Flow chart of the study selection process

Quality of studies

The results of the quality assessment are displayed in table 1. Included studies are either of acceptable quality (score 2; n=1) or of good quality (score 3; n=5).

Amount of studies measuring personal recovery outcomes

Out of the 930 produced studies, six clinical trials measured aspects of personal recovery. However, no study included outcome measures that identified all aspects of personal recovery as described in the CHIME framework. Five out of the six studies included measures of well-being and/or quality of life (de Azevedo Cardoso et al., 2014; Faurholt-Jepsen et al., 2015; Jones et al., 2015; Smith et al., 2011; Todd, et al., 2014). Five studies measured aspects of functioning, either social and personal (n=2) or global functioning (n=3) (Barnes et al., 2015; Faurholt-Jepsen et al., 2015; Jones et al., 2015; Smith et al., 2011; Todd et al., 2014).

Study characteristics

Table 1 shows the characteristics of the individual studies that included personal recovery outcome measurements. The characteristics include the amount of participants, their mean age and gender, the treatment that participants received and the duration of treatments in months or sessions. The time of the follow-up measurements after finishing the treatment is also given, as are the questionnaires and scales used to measure personal recovery outcomes. Format of the treatments, whether or not a control group was used and the drop-out rates are given.

All studies included adult participants, which were, as expected, predominantly female. The duration of treatment programs ranged from 6 sessions in 6 weeks up to 12 months of treatment. The web-based psychoeducation intervention by Barnes, et al (2015) consisted of 20 sessions in which the participants were given educational material about BD.

Five areas of information were given: Dealing with symptoms, issues with medication, psychological approaches, lifestyle and relationships and staying safe. Extra CBT worksheets were also available. The intervention by de Azevedo Cardoso et al. (2014) was a combination of psychoeducation and medication. In the weekly sessions, participants learned about symptoms, depressive and mixed episodes, identification of alert symptoms of new episodes, what to do in case of a new episode (action plan), information about existing treatments for BD and the importance of medication adherence. For the daily electronic self-monitoring intervention by Faurholt-Jepsen et al. (2015), participants received smartphones with a system for self-monitoring. They were prompted at a self-chosen time to evaluate their mood, sleep length, whether medication was taken, their activity, mixed mood, cognitive problems, alcohol consumption, stress, menstruation and individualized early warning signs. The recovery-based CBT by Jones et al. (2015) first took place every week, later every second week. Each session took 45-60 minutes. Topics included in the intervention were: introducing the recovery approach to clients, getting information about current and historical mood and functioning, meaning and relevance of diagnosis BD, identification of recovery informed therapy goals, formulation of relationship between mood experiences and progress towards recovery goals, application of CBT techniques to address and facilitate positive coping, discussing wider functioning issues in relation to recovery, development and completion of recovery plan and sharing lessons from therapy with key stakeholders. The novel psychoeducation developed by Smith et al. (2011) consisted of eight modules that were delivered online on every two weeks for a four-month period. The information was either delivered via videos or interactive exercises that had to be completed. The modules were: accurate diagnosis, causes of BD, role of medication, role of lifestyle changes, relapse and prevention and early intervention, psychological approaches, gender-specific considerations, and advice for family and carers. Lastly, the web-based self-management intervention for BD by Todd et al. (2014) used principles of CBT and psychoeducation. In ten interactive

modules, participants learned about bipolar experiences and how they affect their lives, increase their self-esteem and self-efficacy, increase the knowledge of specific self-management techniques to manage the illness and find personally meaningful recovery goals, increase knowledge of practical and interpersonal skills to live a fulfilling life with the illness.

The studies compared the intervention group with a control group. The control group received treatment-as-usual (Barnes et al., 2015; de Azevedo Cardoso et al., 2014; Faurholt-Jepsen et al., 2015; Jones et al., 2015; Smith et al., 2011; Todd et al., 2014). All clinical trials included follow-up measurements. The follow-up measurements contained the same outcome measurements that were used during the intervention in order to analyse the progress and effects of the different interventions (Barnes et al., 2015; de Azevedo Cardoso et al., 2014; Faurholt-Jepsen et al., 2015; Jones et al., 2015; Smith et al., 2011; Todd et al., 2014). In three clinical trials, the follow-up measurements were done six months after the treatment (de Azevedo Cardoso et al., 2014; Smith et al., 2011; Todd et al., 2014). Two clinical trials did the follow-up measurements 18 months after the treatment (Faurholt-Jepsen et al., 2015; Jones et al., 2015). The clinical trial of Barnes et al. (2015) is describing the first phase of the trial; the follow-up measurements that would take place after the treatment will be described in phase II.

None of the studies included personal recovery outcome measures that were in line with the CHIME framework. The studies only measured aspects that were associated with personal recovery. Five out of six studies included measures of quality of life (de Azevedo Cardoso et al., 2014; Faurholt-Jepsen et al., 2015; Jones et al., 2015; Smith et al., 2011; Todd, et al., 2014). Quality of life was either measured with the WHOQoL-BREF (WHO, 1998), the QoL.BD (Michalak & Murray, 2010) or the MOS SF-36 (Ware & Sherbourne, 1992). The WHOQoL-BREF (WHO, 1998) consists of 26 items that are divided into the four domains: physical health (e.g. mobility, sleep and rest, energy and fatigue), psychological (e.g. negative and positive feelings, self-esteem, thinking, learning, memory and concentration), social

relationships (e.g. personal relationships, social support) and environment (e.g. financial resources, freedom, physical safety, home environment) (WHO, 1998). The QoL.BD (Michalak & Murray, 2010) is a 12-item questionnaire that measures the quality of life specifically for BD patients. Different aspects are included, for example physical, sleep, mood, leisure, spirituality and identity (Michalak & Murray, 2010). THE MOS SF-36 (Ware & Sherbourne, 1992) is a 36-item questionnaire that assesses the quality of life. Eight health concepts are included in the questionnaire: limitations in physical activities because of health problems, limitations in social activities because of health problems or emotional problems, limitations in usual role activities because of psychical health problems, bodily pain, general mental health, limitations in usual role activities because of emotional problems, vitality and general health perception (Ware & Sherbourne, 1992).

All clinical studies included measures of personal (and social) functioning of patients with BD. Barnes et al. (2015) made use of the SDS (Sheehan, Harnett-Shehaan, & Raj, 1996) to measure the overall functioning, which is a three-item scale that assesses the functional impairment in three areas of one's life: work/school, social life and family life (Sheehan et al., 1996). Faurholt-Jepsen et al. (2015) used the FAST (Rosa et al., 2007), which is a 24-item questionnaire that measures impairment in six areas of functioning: autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships and leisure time (Rosa et al., 2007). Jones et al. (2015) used the PSP (Morosini, Magliano, Brambilla, Ugolini & Piolo, 2000) to measure personal and social functioning. It is a 100-item rating scale that assesses the functioning in four areas: socially useful activities, personal and social relationships, self-care, and disturbing and aggressive behaviours (Morosini et al., 2000). The clinical trial of Smith et al. (2011) also used the FAST (Rosa et al., 2007) and the GAF (Spitzer, Gibbon & Williams, 1996). The GAF scale measures how a patient's symptoms affect his or her everyday life (Spitzer et al., 1996). Todd et al. (2015) used the SASS (Bosc, Dubini & Polin, 1997) in order to measure social motivation and behaviour of patients. It

includes 21 items that assess the areas of work and leisure, family and extra-family relationships, intellectual interests, satisfaction in roles and patient self perception of ability to manage and control his or her environment (Bosc et al., 1997).

Primary and secondary outcomes

Three out of the six studies used measures of aspects of personal recovery as a primary outcome of their clinical trial (Barnes et al., 2015; Smith et al., 2011; Todd et al., 2014). For Barnes et al. (2015), impact on functioning measured by the SDS (Sheehan et al., 1996) was used as the primary outcome. Quality of life was an outcome measure for Smith et al. (2011) and for Todd et al. (2014). The former measured quality of life with the WHOQoL-BREF (WHO, 1998) and the latter measured it with the WHOQOL-BREF (WHO, 1998) and the QoL.BD (Michalak & Murray, 2010).

The other three clinical trials used personal recovery measures as secondary outcomes (de Azevedo Cardoso et al., 2014; Faurholt-Jepsen et al., 2015; Jones et al., 2015).

Table 1. *Characteristics of studies included in the review*

First author	N	%female	Mean age (SD)	Treatment	Duration in months/sessions	Follow-up in months	Personal recovery measure	Format	Control group	Drop-out	Jadad-Score
Barnes (2015)	233	72%	39(10.8)	Psychoeducation	12 m	Described in Phase II	SDS	Internet-based, individual	Internet-based 'healthy living'	Study group: 15% control group: 31%	2
De Azevedo (2014)	61	68.9%	24	Psychoeducation	6 sessions	6 m	MOS SF-36	individual	Medication	16 losses	3
Faurholt-Jepsen (2015)	78	Treatment 65.7% Control 68.6%	18-60	Electronic self-monitoring	6 m	6 m	FAST; WHOQOL-BREF	Online; individual	Smartphone normal use	3,7%	3
Jones (2015)	67	70%	<40	Recovery-based CBT	18 sessions	18 m	PSFS; QoLBD;	Individual	Treatment as usual	22%	3
Smith (2011)	50	Treatment 54.2% Control 69.2%	Treatment 42.7(11.4) Control 44.7(9.9)	Psychoeducation	4 m	6 m	WHOQOL-BREF; GAF; FAST	Internet-based; individual	Treatment as usual	34%	3
Todd (2014)	122	72%	43.4(11.3)	Self-management intervention	Up to 6 m	6 m	QoLBD-Brief; SASS	Web-based; individual	Treatment as usual	Intervention: 12% Control: 8%	3

Note. SDC=Sheehan Disability Scale; MOS SF-36=Medical Outcomes Survey Short-Form; WHOQOL-BREF= World Health Organization Quality of Life; FAST=Functioning Assessment Short Test; PSFS=Personal and Social Functioning Scale; QoLBD=Quality of Life in Bipolar Disorder; GAF=Global

Assessment of Functioning: SASS=Social Adaptation Self-Evaluation Scale

Discussion

The purpose of this study was to assess how many clinical studies use personal recovery outcomes for BD patients and what the characteristics of those studies are. After searching the databases PsycINFO and Scopus for clinical trials, only six out of 930 studies were included using personal recovery outcome measures. The studies examined the effects of psychoeducation, CBT or self-monitoring or self-managing interventions. All studies included measures of well-being and/or quality of life and the overall functioning of patients. However, none of the studies used personal recovery based questionnaires that are in line with the CHIME framework and thus address all aspects of personal recovery.

This review shows that so far there is only little attention for personal recovery outcome measures in BD trials. This is in line with the current literature indicating that personal recovery only receives little attention in clinical research (Tse, Murray, Chung, Davidson, Ng & Yu, 2013). A possible explanation is that personal recovery in general is still starting to become more important and that there is still a lack of consensus about the concept and measurement of personal recovery (Pincus, Spaeth-Rublee, & Ramanuj, 2017). Although the field is growing, and frameworks like the CHIME framework are being developed, implementing those outcomes in clinical trials (or the clinical practice) remains a challenge (Pincus et al., 2017). Another challenge regarding the implementation of personal recovery outcomes in clinical trials and practice is that it is a highly individual process. Personal recovery is not the same for every patient and neither is the way to learn to live with the illness. Researchers and clinicians need to see the individual background and profile of their patients (Coulombe et al., 2016). This might be difficult in a research setting.

Furthermore, the current review reveals that especially psychoeducational and self-managing treatments included measures that assess aspects that are associated with personal

recovery. This is in line with current research indicating that especially those two strategies are promising in enhancing personal recovery (Coulombe et al., 2016; Crowe & Inder, 2018). In clinical guidelines, self-management is now recommended for mood disorders as a complementation to standard psychological and pharmacological treatments (Coulombe et al., 2016). Self-management aims to increase one's sense of agency, empowerment, responsibility and the intrinsic motivation to cope with the illness. It includes strategies for reducing and preventing symptoms of the illness and for enhancing personal recovery (Coulombe et al., 2016). Although the relevance of self-management strategies is highlighted, research and interventions on self-management are less frequent. Moreover, there is research indicating that psychoeducational programs that will increase patients' understanding of their illness and their self-awareness are helpful to promote personal recovery. (Crowe & Inder, 2018). It is indicated that personal recovery should first be addressed when the acute phase of the illness is over and the patient is able to reflect and work on the illness (Slade, 2009). As personal recovery aims at learning to live a meaningful life with a mental illness, self-managing and psychoeducative interventions are valuable tools that address those aspects and will also be integrated in treatments in later phases of a patient's progress (Slade, 2009).

The results show that none of the clinical trials used the questionnaires that are in line with the CHIME framework. Clinical trials that measured quality of life either used the WHOQOL-BREF or the QoL.BD. Especially the WHOQOL-BREF is a very prominent instrument to measure this construct (WHO, n.d.). Moreover, it has been suggested that disease specific questionnaires like the QoL.BD are more sensitive for clinical change in quality of life than generic quality of life questionnaires (Sanjuás Benito, 2005). This might explain why some of the clinical trials chose for the specific questionnaire instead of the more general questionnaires that are in line with the CHIME framework. In addition, there are specific questionnaires to measure impairment and overall functioning, which were used in the clinical trials instead of the general questionnaires that focus on the process of recovery.

Another explanation could be that, aside from Jones et al (2014), none of the trials focused specifically on personal recovery as a whole construct. Instead, they addressed on some of the aspects of personal recovery. Therefore, using questionnaires that cover the CHIME framework might not be the first choice for the researchers, as they want to measure more specific constructs.

Three clinical trials in this review used personal recovery outcome measures as secondary outcomes. Three of the six trials included them as primary outcome measures. A reason why personal recovery outcome measures are used as secondary outcomes could be, that personal recovery only recently began to gain more attention in research, so most research might still be more focused on the clinical aspect of recovery (reduction of symptoms), than on enhancing personal recovery, thus the ability to live a meaningful life with BD (Angeler et al., 2018). Although three of the clinical trials in this review used it as a secondary outcome measure, three out of the six clinical trials used it as a primary outcome measure. In those studies, the focus was on aspects of personal recovery and not only on reducing symptoms.

The results of the review also show that in the clinical trials, the gender of the participants were predominantly female. Although there are no significant gender differences in the prevalence of BD, research shows that men are less likely to seek psychological help than women do (Liddon, Kinglerlee & Barry, 2017). This might explain the predomination of female participants in the clinical trials.

One of the main weaknesses of the current study is that the clinical trials were only assessed and screened by one person. Possible other relevant trials might thus have been overlooked. Furthermore, as none of the questionnaires described in the introduction were used in the clinical trials, the author decided whether the outcome measurements were matching with the concept of personal recovery. One of those concepts that match with personal recovery is the concept of quality of life. Quality of life is a concept that was first

introduced short after the second world war (Meeberg, 1993). As quality of life is a concept that exists much longer than the concept of personal recovery, it might only coincidentally match with the concept of personal recovery and it is thus not sure if it is suitable to use measures of quality of life in order to say something about personal recover outcomes.

However, one strength of the current study is that the search for clinical trials and the screening was structured. The field of personal recovery outcome measurements is lacking research about the use of those measurements in clinical trials. This review is the first study that reviews the use of those measurements in recent clinical trials.

For future research, it might be valuable to search registers for trials that make use of personal recovery, but are not yet published, to gather as much information as possible. Moreover, it would be interesting to investigate whether there are differences between countries or cultures regarding the use of personal recovery outcome measures. In that way it could be compared whether other countries/cultures make use of it and how, for example which instruments they use. In general, future research should address the importance of personal recovery measurements in treatments of patients with BD. This can be done by including more personal recovery outcome measurements. In order to really measure personal recovery, it would be useful to include instruments that for example focus on the processes described in the CHIME framework (connectedness, hope, identity, meaning and empowerment). Studies included in this review mostly used rather general outcomes like quality of life and general functioning that are only aspects of personal recovery. In addition, there is a lack of knowledge regarding the responsiveness of personal recovery measures. In line with this, it is important to figure out for which trials personal recovery outcome measurements are suitable. This, because those outcomes are more likely to be suitable when the treatment progress of patients with BD is more advanced (Slade, 2009).

The results of this review have implications for the research on personal recovery outcomes in BD patients. The results show that, although literature states that including personal recovery is very crucial for patients with BD, in most clinical studies, personal recovery outcome measures are not included. Although the shift to its use appears to be beginning, more clinical trials with personal recovery outcome measures need to be made. Practitioners and clinicians need to be made familiar with the concepts of personal recovery and it should be valued as a complement to the common treatment of patients with BD. With more clinical trials and research on how to implement personal recovery outcomes, validated measurements can be used in the clinical practice to help patients with BD live a meaningful and satisfying life.

Conclusion

The purpose of this review was to analyse how many clinical trials researching the effectiveness of treatments for BD patients make use of personal recovery outcome measurements. This review shows that there is still a lack of clinical trials that are including personal recovery measurements. The clinical trials described in this review only included aspects of personal recovery measurements, but no measurements that were in line with the CHIME framework. Although the importance of personal recovery in BD patients is highlighted in research, it is not yet transformed into clinical research outcomes. Thus, more research on personal recovery measurements is needed in order to implement them in clinical trials.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Andresen, R., Caputi, P., Oades L. (2006). Stages of recovery instrument: development of a measure of recovery from serious mental illness. *The Australian and New Zealand journal of psychiatry*, 40, 972-980. doi: 10.1080/j.1440-1614.2006.01921.x
- Angeler, D. G., Allen, C. R., & Persson, M. (2018). Resilience concepts in psychiatry demonstrated with bipolar disorder. *International Journal of Bipolar Disorders*, 6. doi:10.1186/s40345-017-0112-6
- Barnes, C. W., Hadzi-Pavlovic, D., Wilhelm, K., & Mitchell, P. B. (2015). A web-based preventive intervention program for bipolar disorder: Outcome of a 12-months randomized controlled trial. *Journal of Affective Disorders*, 174, 485-492. doi:10.1016/j.jad.2014.11.038
- Bauer, M.S., Crits-Christoph, P., Ball, W.A., Dewees, E., McAllister, T., Alahi, P., ... Whybrow, P.C. (1991). Independent assessment of manic and depressive symptoms by self-rating. Scale characteristics and implications for the study of mania. *Arch Gen Psychiatry*, 48, 807-812. doi: 10.1001/archpsyc.1991.01810330031005
- Bosc, M. S., Dubini, A., & Polin, V. (1997). Development and validation of a social functioning scale, the Social Adaptation Self-evaluation Scale. *European Neuropsychopharmacology*, 7, S57-S70. doi:10.1016/s0924-977x(97)00420-3
- Breznokov, D. (2012). Bipolar disorder and suicide. *Bipolar disorder - A Portrait of a Complex Mood Disorder*. doi:10.5772/34396

- Corrigan, P. W., Giffort, D., Rashid, F., Leary, M., Okeke, I. (1999). Recovery as a psychological construct. *Community Mental Health Journal*, 35. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/10401893>
- Coulombe, S., Radziszewski, S., Meunier, S., Provencher, H., Hudon, C., Roberge, P., ... Houle, J. (2016). Profiles of Recovery from Mood and Anxiety Disorders: A Person-Centered Exploration of People's Engagement in Self-Management. *Frontiers in Psychology*, 7. doi:10.3389/fpsyg.2016.00584
- Crowe, M., & Inder, M. (2018). Staying well with bipolar disorder: A qualitative analysis of five-year follow-up interviews with young people. *Journal of Psychiatric and Mental Health Nursing*, 25, 236-244. doi:10.1111/jpm.12455
- Davey (2008). Psychopathology. Research, assessment and treatment in clinical psychology.
- de Azevedo Cardoso, T., de Azambuja Farias, C., Mondin, T. C., Del Grande da Silva, G., de Mattos Souza, L. D., da Silva, R. A., . . . Jansen, K. (2014). Brief psychoeducation for bipolar disorder: Impact on quality of life in young adults in a 6-month follow-up of a randomized controlled trial. *Psychiatry Research*, 220, 896-902. doi:10.1016/j.psychres.2014.09.013
- Development of the World Health Organization WHOQOL-BREF Quality of Life Assessment. (1998). *Psychological Medicine*, 28, 551-558. doi:10.1017/s0033291798006667
- Drapalski, A.L., Medoff, D., Unick, G.J., Velligan, D.I., Dixon, L.B., Bellack, A.S. (2012). Assessing recovery of people with serious mental illness: development of a new scale. *Psychiatric Services*, 63, 48-53. Doi: 10.1176/appi.ps.201100109.

- Echezarraga, A., Calvete, E., González-Pinto, A., & Las Hayas, C. (2017). Resilience dimensions and mental health outcomes in bipolar disorder in a follow-up study. *Stress and Health*, 34, 115-126. doi:10.1002/smi.2767
- Faurholt-Jepsen, M., Frost, M., Ritz, C., Christensen, E. M., Jacoby, A. S., Mikkelsen, R. L., . . . Kessing, L. V. (2015). Daily electronic self-monitoring in bipolar disorder using smartphones—The MONARCA I trial: A randomized, placebo-controlled, single-blind, parallel group trial. *Psychological Medicine*, 45, 2691-2704. doi:10.1017/S0033291715000410
- Fava, G. A., Ruini, C., & Belaise, C. (2007). The concept of recovery in major depression. *Psychological Medicine*, 37, 307-317. doi: 10.1017/S0033291706008981
- Gao, S., Osuch, E. A., Wammes, M., Theberge, J., Jiang, T., Calhoun, V. D., & Sui, J. (2017). Discriminating bipolar disorder from major depression based on kernel SVM using functional independent components. *2017 IEEE 27th International Workshop on Machine Learning for Signal Processing (MLSP)*. doi:10.1109/mlsp.2017.8168110
- Gitlin, M. J., & Miklowitz, D. J. (2017). The difficult lives of individuals with bipolar disorder: A review of functional outcomes and their implications for treatment. *Journal of Affective Disorders*, 209, 147-154. doi:10.1016/j.jad.2016.11.021
- Graaf, R. de, Have, M. ten, Dorsselaer, S. van (2010). 'De psychische gezondheid van de Nederlandse bevolking NEMESIS-2 : opzet en eerste resultaten'. Utrecht: Trimbos-instituut
- Jadad, A. R., Moore, R. A., Carroll, D., Jenkinson, C., Reynolds, D. J. M., Gavaghan, D. J., & McQuay, H. J. (1996). Assessing the quality of reports of randomized clinical trials: is blinding necessary? *Controlled Clinical Trials*, 17, 1-12.

- 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. *The British Journal of Psychiatry*, 206, 58-66. doi:10.1192/bjp.bp.113.141259
- Keetharuth, A. D., Brazier, J., Connell, J., Bjorner, J. B., Carlton, J., Taylor Buck, E., ... Barkham, M. (2018). Recovering Quality of Life (ReQoL): a new generic self-reported outcome measure for use with people experiencing mental health difficulties. *The British Journal of Psychiatry*, 212, 42-49. doi:10.1192/bjp.2017.10
- Ketter, T. A. (n.d.). Psychlopedia/Diagnostic Features, Prevalence, and Impact of Bipolar Disorder. Retrieved from <http://www.cmeinstitute.com/Psychlopedia/Pages/BipolarDepression/3wibd/sec1/section.aspx>
- 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, 445-452. doi:10.1192/bjp.bp.110.083733
- Le Boutillier, C., Chevalier, A., Lawrence, V., Leamy, M., Bird, V. J., Macpherson, R., ... Slade, M. (2015). Staff understanding of recovery-orientated mental health practice: a systematic review and narrative synthesis. *Implementation Science*, 10. doi:10.1186/s13012-015-0275-4
- Liddon, L., Kingerlee, R., & Barry, J. A. (2017). Gender differences in preferences for psychological treatment, coping strategies, and triggers to help-seeking. *British Journal of Clinical Psychology*, 57, 42-58. doi:10.1111/bjc.12147
- Meeberg, G. A. (1993). Quality of life: a concept analysis. *Journal of Advanced Nursing*, 18, 32-38. Doi: 10.1046/j.1365-2648.1993.18010032.x

- 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, 727-740. Doi: 10.1111/j.1399-5618.2010.00865.x
- Morosini, P., Magliano, L., Brambilla, L., Ugolini, S., & Pioli, R. (2000). Development, reliability and acceptability of a new version of the DSM-IV Social and Occupational Functioning Assessment Scale (SOFAS) to assess routine social functioning. *Acta Psychiatrica Scandinavica*, 101, 323-329. doi:10.1111/j.1600-0447.2000.tb10933.x
- Neil, S. T., Kilbride, M., Pitt, L., Norhard, S., Welford, M., Sellwood, W., & Morrison, A. P. (2009). The questionnaire about the process of recovery (QPR): A measurement tool developed in collaboration with service users. *Psychosis*, 1, 145-155. doi: 10.1080/17522430902913450
- National Institute of Mental Health (n.d.). Bipolar Disorder. Retrieved from <https://www.nimh.nih.gov/health/topics/bipolar-disorder/index.shtml>
- Pincus, H. A., Spaeth-Rublee, B., & Ramanuj, P. P. (2017). Bringing Recovery and Consumers' Views Into the Mainstream of Mental Health Quality Measurement. *Psychiatric Services*, 68, 1182-1184. doi:10.1176/appi.ps.201600222
- Rosa, A. R., Sánchez-Moreno, J., Martínez-Aran, A., Salamero, M., Torrent, C., Reinares, M., ... Vieta, E. (2007). Validity and reliability of the Functioning Assessment Short Test (FAST) in bipolar disorder. *Clinical Practice and Epidemiology in Mental Health*, 3, 5. doi:10.1186/1745-0179-3-5
- Sanjuás Benito, C. (2005). Measuring Quality of Life: Generic or Specific Questionnaires? *Archivos de Bronconeumología ((English Edition))*, 41, 107-109. doi:10.1016/s1579-2129(06)60409-6

- Shanks, V., Williams, J., Leamy, M., Bird, V. J., Le Boutillier, C., & Slade, M. (2013). Measures of personal recovery: a systematic review. *Psychiatric Services*, 64, 974-980.
- Sheehan, D. V., Harnett-Sheehan, K., & Raj, B. A. (1996). The measurement of disability. *International Clinical Psychopharmacology*, 11, 89-95.
doi:10.1097/00004850-199606000-00015
- Slade, M. (2009). *Personal recovery and mental illness: A guide for mental health professionals*. Cambridge: Cambridge University Press.
- Slade, M. (2010). Mental illness and well-being: the central importance of positive psychology and recovery approaches. *BMC Health Service Research*, 10:26
- Smith, D. J., Griffiths, E., Poole, R., di Florio, A., Barnes, E., Kelly, M. J., . . . Simpson, S. (2011). Beating Bipolar: Exploratory trial of a novel internet-based psychoeducational treatment for bipolar disorder. *Bipolar Disorders*, 13, 571-577. doi:10.1111/j.1399-5618.2011.00949.x
- Spitzer, R.L., Gibbon, M., Williams, J.B.W. (1996). Global Assessment of Functioning (GAF) Scale. *Outcome Assessment in Clinical Practice*, 76-77.
- Todd, N. J., Jones, S. H., Hart, A., & Lobban, F. A. (2014). A web-based self-management intervention for Bipolar Disorder ‘Living with Bipolar’: A feasibility randomised controlled trial. *Journal of Affective Disorders*, 169, 21-29.
doi:10.1016/j.jad.2014.07.027
- Tse, S., Murray, G., Chung, K., Davidson, L., Ng, K., & Yu, C. H. (2013). Exploring the recovery concept in bipolar disorder: a decision tree analysis of psychosocial correlates of recovery stages. *Bipolar Disorders*, 16, 366-377. doi:10.1111/bdi.12153

- Tundo, A., Musetti, L., Benedetti, A., Massimetti, E., Pergentini, I., Cambiali, E., & Dell'Osso, L. (2018). Predictors of recurrence during long-term treatment of bipolar I and II disorders. A 4 year prospective naturalistic study. *Journal of Affective Disorders*, 225, 123-128. doi:10.1016/j.jad.2017.08.013
- Veseth, M., Binder, P., Borg, M., & Davidson, L. (2016). Recovery in bipolar disorders: Experienced therapists' view of their patients' struggles and efforts when facing a severe mental illness. *Journal of Psychotherapy Integration*, 26, 437-449. doi:10.1037/int0000046
- Ware, J. E., & Sherbourne, C. D. (1992). The MOS 36-Item Short-Form Health Survey (SF-36). *Medical Care*, 30, 473-483. doi:10.1097/00005650-199206000-00002
- WHO | WHOQOL: Measuring Quality of Life. (n.d.). Retrieved from <http://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/>
- William Anthony (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1900's. *Psychosocial Rehabilitation Journal*, volume, 16, 11-23.

Appendix

Appendix A. Search string Scopus

TITLE-ABS-KEY (bipolar AND disorder* AND (clinical
AND trial* OR intervention* OR randomized AND controlled
AND trial*)) AND PUBYEAR > 2009 AND (LIMIT-
TO (SUBJAREA , "PSYC") OR LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-
TO (LANGUAGE , "English")) AND (EXCLUDE (SUBJAREA , "MEDI") OR EXC
LUDE (SUBJAREA , "PHAR"))

Appendix B. Search string PsycINFO

(bipolar AND disorder* AND (clinical AND trial* OR intervention* OR randomized AND
controlled AND trial*))

Limiters: Publication Year: 2010-2018; Peer reviewed; English

Subject: Major Heading: bipolar disorder

Age: adulthood (18 yrs & older)