Psychometric Properties of the Social Participation Questionnaire – Short Form (s-SRPQ) for Individuals with Bipolar Disorder

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Abstract

Social role participation is a key factor contributing to the personal recovery of individuals with bipolar disorder (BD). Therefore, a valid and reliable instrument measuring social role participation is needed. The current study investigated the factor structure, internal consistency, convergent validity, and incremental validity of the short form of the Social Role Participation Questionnaire (s-SRPQ) in a sample of individuals with BD ($N = 97$). The factor structure was assessed using CFA and internal consistency was evaluated calculating the reliability coefficients Cronbach's Alpha and McDonald's Omega. Convergent validation measures were assessed calculating correlations between the s-SRPQ and measures of personal recovery, positive emotions, positive relationships, and depressive and anxiety symptoms. Incremental validity was examined by testing whether the two dimensions of social role participation explain additional variance in personal recovery above and beyond anxiety and depressive symptoms. The results of the CFA suggested a poor fit of the previously established two-factor structure (CFI = 0.716; TLI = 0.646; SRMR = 0.108; RMSEA = 0.105). When error correlations were allowed, the fit slightly improved but still no acceptable fit of the model could be found (CFI = 0.883; TLI = 0.848; SRMR = 0.089; RMSEA = 0.110). Internal consistency was found to be acceptable for the *Satisfaction* dimension ($\alpha = 0.77$ and $\omega = .78$) and good for the *Difficulties* dimension ($\alpha = 0.81$ and $\omega = .82$). For the convergent validity measures, strong correlations were found between *Satisfaction* and personal recovery, positive emotions, and positive relationship, as well as strong negative between *Satisfaction* and depressive and anxiety symptoms. The opposite was true for the *Difficulties* dimension. Furthermore, the s-SRPQ explained additional variance in personal recovery above and beyond depressive and anxiety symptoms, indicating incremental reliability. The present findings suggest that the s-SRPQ is a reliable and valid measure to assess social role participation in individuals with BD, but considering the poor fit of the model, a revision of the questionnaire for individuals with BD seems necessary. These findings emphasize the importance of measuring and focusing on social role participation when aiming at increasing personal recovery in clinical and research practice.

Psychometric Properties of the Social Participation Questionnaire – Short Form (s-SRPQ) for Individuals with Bipolar Disorder

Over the past two decades, the need to personalize the treatment of individuals experiencing serious mental health disorders and especially bipolar disorder (BD) has been receiving increasing attention in research (Alda & Manchia, 2018; Kasper, 2003; Leboyer & Kupfer, 2010; Salagre et al., 2020). To adequately respond to this need, a broad range of questionnaires should be available to screen for the individual needs and wishes of individuals suffering from BD. As individuals with BD are experiencing a broad range of varying symptoms and are often suffering from comorbid diseases such as alcohol and substance abuse, the development of suitable screening instruments for this patient group seems to be a scientific challenge (Hirschfeld et al., 2000; Miller et al., 2004). Considering that one factor that seems to significantly contribute to personal recovery from several chronic impairments and psychiatric disorders and specifically BD is social role participation (Kraiss et al., 2021, Jaeger & Hoff, 2012), a valid and reliable measure of social role participation seems to be necessary. Therefore, the current study aims at reviewing the psychometric properties of the Social Role Participation Questionnaire in its short form (s-SRPQ) in order to validate its use in clinical and research settings for the patient group of individuals with BD.

BD, which was earlier also often referred to as manic-depressive illness, is a lifelong, episodic, often chronic disorder that is characterized by pathological disturbances in mood, resulting in alternating periods of depression and (hypo)mania (Goodwin & Jamison, 2007). The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) differentiates between bipolar I disorder (BD-I) and bipolar II disorder (BD-II). In BD-I, an affected person is experiencing manic episode(s) in which an extreme increase in energy or uncomfortable irritability in mood, as well as depressive or hypomanic episodes for some

individuals. Individuals with BD-II are experiencing at least one major depressive episode and one hypomanic episode but tend to function normally between episodes (American Psychiatric Association, n.d.).

A study by Merikangas et al. (2011), in which cross-sectional face-to-face household surveys were conducted in 11 countries in America, Europe, and Asia, reports the estimated 12-month prevalence of BDI to be 0.4% and of BDII to be 0.3%. The aggregate lifetime prevalence was reported to be 0.6% for BDI and 0.4% for BDII. BD is associated with a substantial economic burden especially on the health care system but also society (Kleine-Budde et al., 2013; Kraiss et al., 2020; Leboyer & Kupfer, 2010). Next to these economic and societal consequences, BD also has severe personal effects. Individuals suffering from BD face the highest risk for suicide among all affective disorders (Gonda et al., 2012). Furthermore, BD is associated with poor quality of life and comorbid conditions further decreasing quality of life (IsHak et al., 2012), cognitive impairment resulting in poorer sustained attention and inhibitory control (Cotrena et al., 2016), difficulties in social adjustment, low self-esteem (Blairy et al., 2004), and high caregiver burden (Pompili et al., 2014).

Current treatment of BD has a rather strong focus on symptomatic or clinical recovery, which means being free from or experiencing significantly fewer symptoms, and functional recovery, meaning being able to fulfill social roles and functioning in society. However, more recently, personal recovery is receiving increased but not sufficient scientific attention in association with BD (Kraiss et al., 2021). Personal recovery has been conceptualized as "*a deeply personal, unique process of changing one's attitudes, values, feelings, goals, skills and/or roles…a way of living a satisfying, hopeful and contributing life even with limitations caused by illness*" (Anthony, 1993, p. 553). Leamy et al. (2011) have developed the CHIME framework for personal recovery, identifying connectedness, hope,

and optimism about the future, identity, meaning in life, and empowerment as the five most important processes of personal recovery.

It has been shown that individuals experiencing severe mental disorders such as BD are increasingly dissatisfied with symptom reduction and relapse prevention being the main targets of treatment, emphasizing the importance of focusing on personal recovery and mental well-being (Jones et al., 2010; Pitt et al., 2007). According to a study by Warwick et al. (2019), individuals with BD identify several more factors important in their personal recovery, such as support, recognition of the problem, believing that things can change and not giving up, instinctive curiosity, medication, psychological therapy, becoming the director of their own life, changing how to think, accepting who they are and how they feel, and looking after themselves. Mezes et al. (2021) showed that for women with BD better personal recovery, in contrast to clinical recovery, is associated with higher adaptive coping and risk-taking. Personal recovery and mental well-being are also of specific importance for individuals suffering from BD because of the possibility that increased mental well-being in the phases between episodes might serve as a buffer against residual symptoms possibly causing relapse (Judd et al., 2002; Judd et al., 2003). As social role participation seems to be an important factor that can facilitate and contribute to personal recovery from several chronic impairments and psychiatric disorders and specifically BD, it seems very important to pay special attention to this concept during the treatment of BD (Kraiss et al., 2021; Jaeger & Hoff, 2012).

Social role participation can be defined as being able to undertake activities in the larger social context like attending social events and being involved in social structures such as families, religion, and employment (Oude Voshaar et al., 2016). As social role participation is expected to play a role in building and maintaining self-esteem as well as personal and economic autonomy (Goordev et al., 2017), it might be of specific importance

for individuals suffering from BD. Furthermore, higher satisfaction with the social role taken on in the workplace has been found to be associated with lower depressive and anxiety symptoms, as well as with more social action (Nadinloyi et al., 2013), which are treatment goals relevant for treating BD. According to Kraiss et al. (2021), social role participation is an important predictor for personal recovery in persons with BD. In their study, satisfaction with the performance of social roles was strongly independently correlated with personal recovery, besides other factors like symptoms, emotion regulation, and demographics. These findings suggest that social role participation is a relevant and important treatment goal when aiming at improving personal recovery, for example by fostering intimate relationships or the ability to work which can increase feelings of relatedness and meaning in life (Kraiss et al., 2021). Feelings of relatedness and meaning in life are, according to the CHIME framework, are two central components of personal recovery (Leamy et al., 2011), and can therefore support individuals suffering from BD in their recovery process. However, to make social role participation a measurable treatment outcome, a valid and reliable measure is needed.

One commonly used measure of social role participation is the Social Role Participation Questionnaire (SRPQ). In its original form, the SRPQ measures role importance, satisfaction with the time spent in roles, and satisfaction with role performance (Oude Voshaar et al., 2016, Davis et al., 2011, Gignac et al., 2008). Oude Voshaar et al. (2016) developed a short form of the SRQP (s-SRQP) and suggest that the s-SRPQ retains reliability and validity while being significantly shorter than in its original form. The s-SRPQ has two subscales: *Satisfaction with the Role* and *Experienced Difficulties with the Role.* Currently, the s-SRPQ has only been validated for patients with Ankylosing Spondylitis (Oude Voshaar et al., 2016). Nevertheless, this study is not the first one using the s-SRPQ for individuals with BD (Frye, 2020; Kraiss et al., 2018; Kraiss et al., 2019; Kraiss et al., 2021) and there are more reasons to believe that this measure can also be applied for populations

with mental health problems and more specifically, BD. Oude Voshaar et al. (2016) suggested that the items represent general roles and are not limited to any Ankylosing Spondylitis-specific area, for which the measure was originally developed. In favour of this is the fact that Ankylosing Spondylitis (AS) and BD are both chronic and mostly life-long diseases that might restrict the ability to work and reduce the quality of life (Fagiolini et al., 2005; Michalak et al., 2005; Sieper et al., 2002).

As outlined above, personal recovery seems to be of specific importance in individuals of BD and social participation seems to significantly contribute to personal recovery. Considering the issues that go along with the development of suitable screening instruments for this patient group (Hirschfeld et al., 2000; Miller et al., 2004), a reliable and valid measure of social participation for the patient group of individuals with BD is needed to make it a measurable construct that can be used in clinical practice. The resulting research question is *What are the psychometric properties of the s-SRPQ in individuals with BD?*

To be able to assess the psychometric properties, the underlying factor structure, and the reliability, as well as the convergent and incremental validity of the s-SRPQ for individuals with BD will be examined. It is expected that the *Satisfaction with the Role* dimension moderately positively correlates with positive relationships, positive emotions, and personal recovery. While the positive association between social role participation and personal recovery already has been established in a previous study (Kraiss et al., 2019), up to date, there is no clear evidence for the relationship between the satisfaction with a social role and positive relationships and positive emotions. As higher satisfaction with the social role in the workplace is associated with lower depressive and anxiety symptoms (Nadinloyi et al., 2013), a moderate negative correlation between *Satisfaction with Social Roles* and the symptom measures of anxiety and depression is expected. Furthermore, it is hypothesized that *the Experienced Difficulty with Social Roles* behaves opposite to satisfaction with the

social role dimension. Therefore, it is expected that this dimension moderately negatively correlates with positive relationships, positive emotions, and personal recovery and moderately positively correlates with the symptom measures of anxiety and depression.

Method

Participants and Procedure

The data used for this study was obtained during a randomized controlled trial of a multicomponent positive psychology intervention for euthymic patients with BD by Kraiss et al. (2018). Measurements took place at baseline, post-intervention, and follow-up six and twelve months from baseline. The current study uses the baseline data from this trial. The aim of this RCT was to assess whether the positive psychology intervention offered to BD patients in an addition to usual care (CAU) is more effective in improving mental well-being and personal recovery compared to CAU alone. The inclusion criteria were that participants have been diagnosed with either BD-I or BD-II, were between the ages of 18-65, have had four or more supportive sessions in the last year, and only have had residual depressive or manic symptoms. Exclusion criteria were if patients were in a depressive or manic episode or have had current additional mental health problems. This resulted in a sample size of 97 patients that were diagnosed with BD-I or BD-II and are in the euthymic phase. The participants were randomized to either the experimental condition that received the intervention in addition to CAU or the control condition that only received CAU. Not only social participation was measured to assess the effectiveness of the intervention, but also global illness severity, well-being, personal recovery, manic, depression and anxiety symptoms, positive emotions, self-compassion, positive relationships, dampening of positive affect, relapse, and quality of life (Kraiss et al., 2018).

Study Measures

From the randomized controlled trial conducted by Kraiss et al. (2018), the Questionnaire about the Process of Recovery (QPR), Positive and Negative Affect Schedule (PANAS), Scales of Psychological Well-Being (SPWB), Hospital Anxiety and Depression Scale (HADS), and the Quick Inventory of Depressive Symptomatology (QIDS-SR) were selected because of the previously elaborated expected relationships with social role participation with the aim of establishing convergent and incremental validity.

Social Role Participation

The s-SRPQ was developed drawing on the three chapters representing social role participation of the International Classification of Functioning, Disability, and Health (ICF) in order to explore the diversity of the social roles represented by the SRPQ and explore where there might be conceptual redundancy. For that, the SRPQ roles were linked to the different ICF chapters (Oude Voshaar et al., 2016). Oude Voshaar et al. (2016) aimed at preserving the reliability of the SRPQ by evaluating to what extent the individual role scores contribute to the measurement precision of the scores for the three original SRPQ dimensions with the statistical Item Response Theory framework.

The resulting s-SRPQ consists of six social roles (intimate relationship, employment, planning/engaging social, relationship with family, traveling/vacationing, and education) along two dimensions (satisfaction with role performance and experienced difficulties). The items are scored on a 5-point Likert scale, reaching from 0 (not satisfied at all/no difficulties at all) to 4 (very much satisfied/not possible). In this study, the sixth and the twelfth item only had to be answered when they were applicable as they ask about intimate relationships. As the sum score would not be very representative if it was including an extra item only for some participants, the mean instead of the sum score was calculated. When it was answered

that the items six and/or twelve were not applicable, the mean score of the dimension was

calculated with five instead of six items.

According to Oude Voshaar et al. (2016), the s-SRPQ retains the reliability and

construct validity of the original version while being much shorter ($\alpha = .86$). In addition, it is

suggested that the items represent general roles and are not limited to any Ankylosing

Spondylitis-specific area, for which the measure was originally developed (Oude Voshaar et

al., 2016).

Personal Recovery

To assess personal recovery, the 15-item version of the Questionnaire about the

Process of Recovery (QPR; Neil et al., 2009; Law et al., 2014) was used, measuring personal

recovery at the present time. The items are scored on a 5-point Likert Scale which ranges

from 0 (disagree strongly) to 4 (agree strongly) where higher scores indicate higher personal

recovery. Kraiss et al. (2019), translated the QPR into Dutch via forward and backward

translation and assessed the psychometric properties of the Dutch QPR in BD, for which they

found excellent internal consistency ($\alpha = .92$). In its English version, the psychometric

qualities of the QPR were found to be good ($\alpha = .89$; Williams et al., 2015). For the current

study, also an excellent Cronbach's Alpha was found ($\alpha = .91$).

Positive Relationships

To measure positive relationships, the subscale *positive relations* of the Scales of

Psychological Well-Being (SPWB; Ryff & Keyes, 1995) was used. This scale measures the

extent to which an individual experiences meaningful intrapersonal relationships with other

people. In the 9-item version, which was used for the current study, items are scored on a

scale ranging from 1 (strongly disagree) to 6 (strongly agree) where higher scores indicate

more positive relationships with others. There is no recall period specified in which the

positive relationships have taken place. Acceptable internal consistency was found for the

Dutch translation of the positive relations subscale in two studies with samples of undergraduate psychology students and adults from a diverse occupational background (α = .77; van Dierendonck, 2004). In the current study, the internal consistency of the SPWB was found to be good (α = .81).

Positive Emotions

Positive emotions were assessed using the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), which measures current emotions with 20 items on the two dimensions positive and negative affect. For this study, only the positive affect scale was used, and the participants rate the extent to which they have experienced emotional states on a scale reaching from 1 (very slightly or not at all) to 5 (extremely). Respondents indicate for the ten items whether they have experienced the described positive in the past week. Higher sum scores indicate more positive emotions. The Dutch version of this subscale showed good reliability (α = .79; Engelen et al., 2006). In the current sample, an excellent internal consistency was found (α = .91).

Depressive Symptoms

In order to assess depressive symptoms, the Quick Inventory of Depressive Symptomatology (QIDS-SR; Rush et al., 2003) was used. The self-report version measures depressive symptoms of the last seven days with 16 items, which participants score on a 4-point Likert Scale on different depressive symptoms such as sleep disturbance, sad mood, decrease/increase in appetite/weight, concentration, self-criticism, or suicidal ideation (Rush et al., 2003; Wardenaar et al., 2010). The QIDS-SR showed high internal consistency (α = .86) in a study by Rush et al. (2003) and acceptable internal consistency in the current study (α = .75).

Anxiety Symptoms

Anxiety symptoms are assessed using the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS-A; Zigmond & Snaith, 1983). The HADS-A includes seven items and participants rate the frequency of symptoms on a scale from 0 (not at all) to 3 (very often). The higher the sum score, the higher are the experienced anxiety symptoms. Its Dutch version showed good internal consistency (α = .84; Spinhoven et al., 1997), which was confirmed with the current sample (α = .86).

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 27.0 (IBM Corp., 2020) and R (R Core Team, 2018). A confirmatory factor analysis (CFA) was conducted in R with the package lavaan (Rosseel, 2012) to confirm the previously established factor structure of the two underlying latent factors *Satisfaction with Social Role* and *Experienced Difficulties with the Social Role* (Oude Voshaar et al., 2017). Items one to six are expected to be indicators of the latent factor *Satisfaction with Social Role,* and items seven to twelve are expected to be indicators of the latent factor *Experienced Difficulties with Social Role*. A strict two-factor solution was fitted to check whether the twelve indicators load on the two latent factors as expected with maximum likelihood estimation. Factor loadings are considered to be meaningful when they exceed the threshold of .4 (Floyd & Widaman, 1995). To test the fit of the model, the comparative fit index (CFI), Tucker Lewis Index (TLI), standardized root square mean residual (SRMR), and root-mean-square error approximation (RMSEA) were calculated. CFI and TLI values >.90 are seen as acceptable (Hu & Bentler, 1998). Furthermore, SRMR values <.08 were seen as indicating a good fit of the model, as well as RMSEA values >.06 (Hu & Bentler, 1998). Furthermore, chi-square (x^2) was used to assess the fit of the model. A non-significant, smaller x^2 indicates a better fit of the model and the x^2 value divided by the degrees of freedom (df) should be <2 for a

good model fit (Kline, 1998). Firstly, the model was evaluated based on assuming uncorrelated errors between items. In order to explore whether allowing error correlations between items would improve the fit of the model, modification indices were calculated using lavaan. To test whether the fit of the model has improved significantly after allowing for error correlations, an x^2 difference test was conducted, in which significant results indicate a significant difference in fit between competing models (Werner & Schermelleh-Engel, 2010).

The internal consistency of the s-SRPQ was evaluated with the Cronbach's Alpha Coefficient (α) and McDonald's Omega (ω). McDonald's Omega was calculated because if the assumption of tau-equivalence is not met, omega is the more accurate estimate of internal consistency (Dunn et al., 2013). The assumption of tau-equivalence entails that all items in the factorial model have equal factor loadings (Rönkkö & Cho, 2020). McDonald's Omega was calculated in SPSS using Hayes Omega Macro (Hayes & Coutts, 2020).

Convergent validity of the s-SRPQ was determined by calculating bivariate Pearson's correlation coefficients between the subscale scores of the s-SRPQ, the QPR, the PANAS, and the SPWB scores with SPSS. Values between 0.1 and 0.3 were considered as weak, between 0.3 and 0.5 as moderate, and values larger than 0.5 as strong correlation (de Vaus, 2002).

Incremental validity was estimated by conducting hierarchical multiple regression analyses to assess whether the two dimensions of social role participation explain additional variance in personal recovery above and beyond anxiety and depressive symptoms. Therefore, two separate hierarchical multiple regression models were conducted. The first regression contained personal recovery as a dependent variable and anxiety symptoms as the independent variable in the first step. In a second step, the social role participation dimensions were added to the model. The second hierarchical multiple regression model also contained personal recovery as a dependent variable but depressive symptoms as the

independent variable in the first step. In a second step, the social role participation

dimensions were again added to the model.

Results

Description of the sample

The mean age of the 97 respondents collected for the study by Kraiss et al. (2018) was

47 years ($SD = 10.33$, range 24-66). More than two-thirds of the participants were female and

slightly less than one-third male. Most participants were married or in a registered

relationship, but also many were never married or divorced. With regards to the employment

status, most participants were unable to work or had a paid job

The sum score of *Satisfaction with Social Role* dimension of the s-SRPQ in this

sample was 13.76 ($N = 97$, $SD = 4.61$) and for the dimension *Experienced Difficulties with*

Social Role 14.93 ($N = 95$, $SD = 4.36$). These results are slightly lower compared to a prior

study by Kraiss et al. (2019) in which they included a comparable sample of individuals with

BD and found an s-SRPQ score of 14.62 ($SD = 5.41$) for the satisfaction dimension and 16.77

($SD = 5.41$) for the difficulty dimension. However, this difference can be explained

considering that the sixth and twelfth items only had to be answered if they were applicable

in the current study.

Table 1

Sample characteristics (N= 97)

		N	%
Gender	Female	69	71
	Male	28	29
Marital Status	A married or registered relationship	33	34.0
	Never married	25	25.8
	Divorced	23	23.7
	Other	16	16.5
Employment Status	Unable to work	35	36.1
	Paid work	28	28.9
	Unpaid work	26	26.8
	Unemployed	6	6.2
	Student	2	2.1
Education	Low	44	45.3
	Moderate	38	39.3
	High	14	14.4

Note: Variations in N due to missing data

Factor Structure and Internal Consistency

With regards to the factor structure, the CFA demonstrated poor fit of the two-factor model (CFI = 0.716; TLI = 0.646; SRMR = 0.108; RMSEA = 0.105). Also, the chi-square test of model fit was significant (x^2 (53) = 163.07; $p < .001$), indicating a poor fit of the model. Furthermore, the ratio between x^2 and the degrees of freedom was found to be 3.08, indicating a poor fit of the model.

The standardized factor loadings for Factor 1 (Satisfaction with Social Role) and Factor 2 (Experienced Difficulties), as well as the corrected item-total correlations, can be found in Table 2. Almost all items showed satisfactory factor loadings. Only item 6 and item 12 were found to be below the previously identified threshold of .4 and therefore have unsatisfactory factor loadings.

The internal consistency of the s-SRPQ for the *Satisfaction with Social Role* dimension was found to be acceptable ($\alpha = 0.77$ and $\omega = .78$) and the internal consistency of the *Difficulties with Social Role* dimension was found to be good ($\alpha = 0.81$ and $\omega = .82$). However, the internal consistency of the satisfaction and difficulty dimension could be increased by excluding the sixth and the twelfth item to a Cronbach's alpha of 0.79 and 0.84 respectively. Nevertheless, it was decided that due to the only slight increase in reliability if the two items would be removed, both items were retained for further analyses.

Table 2

Standardized factor loadings for the two latent factors and corrected item-total correlations

Item	Factor Loading		Corrected item-total correlation
	Factor 1: Satisfaction with Role	Factor 2: Experienced Difficulty	
Item 1: Satisfaction with planning/engaging social	.70	-	.51
Item 2: Satisfaction with traveling/vacationing	.66	-	.57
Item 3: Satisfaction with employment	.72	-	.48
Item 4: Satisfaction with education	.71	-	.50
Item 5: Satisfaction with relationship with family	.61	-	.62
Item 6 (if applicable): Satisfaction with an intimate relationship	.36	-	.87
Item 7: Difficulty with planning/engaging social	-	.82	.34
Item 8: Difficulty with traveling/vacationing	-	.83	.31
Item 9 Difficulty with employment	-	.65	.58
Item 10: Difficulty with education	-	.62	.62
Item 11: Difficulty with relationship with family	-	.65	.57
Item 12 (if applicable): Difficulty with an intimate relationship	-	.29	.92

After having examined the modification indices, an error correlation was allowed between items 4 and 10, as well as items 6 and 12, which led to an improvement of the fit (CFI = 0.883; TLI = 0.848; SRMR = 0.089; RMSEA = 0.110). All fit indices showed a slightly better fit of the model. The SRMR has decreased compared with the original model and now indicates a good fit of the model in which error correlations are allowed. The CFI and TLI have increased, showing a better but still questionable fit of the model. Lastly, also the x^2/df ratio was found below 2, indicating a good fit. However, the chi-square test of model fit was still significant (x^2 (51) = 96.379; $p < .001$). A comparison between fit indices of the original model and the model in which the error correlations were allowed can be found in Table 3. The difference between the two models was found to be significant, based on a chi-square difference test (Δx^2 = 66.69; Δdf = 2, $p < .001$).

Table 3

Comparison between the fit indices of the original model and the model in which error correlations were allowed

	x^2	df	x^2/df	CFI	TLI	SRMR	RMSEA
Original model	163.07***	53	3.08	0.716	0.646	0.108	0.105
Model with error correlations	96.38***	51	1.89	0.883	0.848	0.089	0.110

***$p < .001$.

Convergent Validity

An overview of the descriptive statistics of the validation measures and their correlations with the s-SRPQ can be found in Table 4. All relationships are correlated in the hypothesized direction. The *Satisfaction with Social Role* scores strongly positively correlated with *Personal Recovery (r = .61)*, *Positive Emotions (r = .67)*, and *Positive Relationships* scores (*r = .54*). The *Satisfaction with Social Role* scores correlated strongly negatively with *Depressive Symptoms (r = -.53)* and moderately negatively with *Anxiety Symptoms (r = .39)*. Further, a strong negative association was found between the

Experienced Difficulties with Social Role scores and the *Positive Emotions* measure (*r* = -

.50). A moderate negative association was found between the scores of *Experienced*

Difficulties with Social Role and *Personal Recovery* (*r* = -.49), as well as between

Experienced Difficulties with Social Role and *Positive Relationship* scores (*r* = -.36). As

hypothesized, *Experienced Difficulties with Social Role* scores correlated moderately

positively with *Anxiety Symptoms* (*r* = .37). Finally, a strong positive relationship was found

between scores of *Experienced Difficulties with Social Role* and *Depressive Symptoms* (*r* =

.56). All correlations were found to be significant.

Table 4

Descriptive statistics and bivariate Pearson's Correlations between the s-SRPQ and criterion

measures

Measure	*M* (*SD*)	s-SRPQ	
		Satisfaction with Role	Experienced Difficulties
s-SRPQ			
Satisfaction with role (N = 97)	2.37 (0.77)	-	-.60**
Experienced difficulty (N = 95)	2.58 (0.73)	-.60**	-
QPR (N = 95)	33.24 (9.81)	.61**	-.49**
PANAS (N = 95)	28.12 (8.10)	.67**	-.50**
SPWB (N =95)	36.22 (8.10)	.54**	-.36**
HADS (N = 95)	8.01 (4.70)	-.39**	.37**
QIDS-SR (N = 96)	13.02 (6.30)	-.53**	.56**

Note: Variations in N due to missing data

Abbreviations: QPR, Questionnaire about the Process of Recovery; PANAS, Positive and Negative

Affect Schedule; SPWB, Scales of Psychological Well-Being; HADS, Hospital Anxiety and

Depression Scale; QIDS-SR, Quick Inventory of Depressive Symptomatology

**p* < .01.

Incremental Validity

To determine the incremental validity of the s-SRPQ, it was tested whether the scores

of the s-SRPQ explained a significant amount of variability in personal recovery above and

beyond the scores of depressive and anxiety symptoms. In the first hierarchical multiple regression model, the HADS scores were entered in the first step. In the second step, scores of both s-SRPQ dimensions were included. It became apparent that the scores of the s-SRPQ explained 18% additional variance in personal recovery above and beyond anxiety symptoms ($p < .001$), and social role participation significantly explained personal recovery above and beyond anxiety symptoms. An overview of the first hierarchical regression analysis can be found in Table 5.

In order to test whether social role participation also significantly explained personal recovery above and beyond depressive symptoms, a second hierarchical multiple regression analysis was conducted. In the first step, the QIDS scores were entered and the s-SRPQ dimensions in the second step. As a result, the s-SRPQ scores explained 13% additional variance in personal recovery above and beyond depressive symptoms ($p < .001$), and social role participation significantly explained personal recovery above and beyond depressive symptoms. A detailed overview of the second model can be found in Table 6.

Table 5

Summary of hierarchical regression analysis for personal recovery (QPR) and the two dimensions of social role participation (s-SRPQ) and the depression subscale of the Hospital Anxiety and Depression Scale (HADS)

Variable	B	SE	β	t	R^2	ΔR^2
		Step 1				
Constant	43.21	1.70		25.51***	.34***	
Anxiety Symptoms (HADS)	-1.23	0.21	-.36	-6.78***		
		Step 2				
Constant	31.51	5.55		5.68***	.52***	.18***
Anxiety Symptoms (HADS)	-0.83	0.17	-.39	-4.83***		
Satisfaction with Role (s-SRPQ)	5.13	1.21	.40	4.26***		
Experienced Difficulties (s-SRPQ)	-1.45	1.25	-.11	-1.16		

$**p < .05, ***p < .001.$

Table 6

Summary of hierarchical regression analysis for personal recovery (QPR) and the dimensions of social role participation (s-SRPQ) and the Quick Inventory of Depressive Symptomatology (QIDS)

Variable	B	SE	β	t	R^2	ΔR^2
		Step 1				
Constant	45.14	1.93		23.36***	.34***	
Depressive Symptoms (QIDS)	-0.91	0.13	-.579	-6.81***		
		Step 2				
Constant	30.61	5.84		5.25***	.47***	.13***
Depressive Symptoms (QIDS)	-0.53	0.15	-.34	-3.51***		
Satisfaction with Role (s-SRPQ)	5.04	1.28	.39	3.93***		
Experienced Difficulties (s-SRPQ)	-0.92	1.38	-.07	-0.67		

$**p < .05, ***p \leq .001.$

Discussion

The present study is the first to assess the psychometric properties of the s-SRPQ in a sample of individuals with BD, as well as to evaluate the relationship of the s-SRPQ with personal recovery, positive emotions, positive relationships, and depressive and anxiety symptom measures. Of all existing measures of social role participation, the SRPQ is one of the most common and prominent ones existing in current literature. In its original version, the SRPQ encompasses 36 items and a study by Davis et al. (2011) demonstrated its reliability and validity in patients with AS. As the length of the SRPQ might inhibit its common use in clinical practice as well as research settings, a short form was developed by Oude Voshaar et al. (2016). Nevertheless, the s-SRPQ has also been used for patients with BD (Frye, 2020; Kraiss et al., 2018; Kraiss et al., 2019; Kraiss et al., 2021) but to date, has not been validated for this patient group.

In general, the current findings suggest that the s-SRPQ is a reliable and valid measure to assess social role participation in individuals with BD. However, the previously established factor structure could not be confirmed, indicating that redesigning the scale

might be necessary. Even though acceptable factor loadings were found for most items, the factor structure seems to be questionable as the two-factor model revealed a poor fit. These findings seem contradictory to earlier findings as both, Oude Voshaar et al. (2016) for the Dutch version, and Akyol et al. (2018) for the Turkish version found a good fit of the two-factor model. However, these conclusions were drawn based on Lagrange multiplier statistics (Oude Voshaar et al., 2016) and the Kaiser-Meyer-Olkin test (Akyol et al., 2018) instead of fit measures. Considering that the modification indices suggested error correlations between items 4 and 10, as well as items 6 and 12, these items are discussed more in detail. The negative error correlations seem explicable by their similarity as items 4 and 10 measure satisfaction and experienced difficulty with education and item 6 and 12 measure satisfaction and difficulty with intimate relationships, respectively. Therefore, individuals tended to describe experiencing less satisfaction with education and intimate relationships and education at the same time as more difficulties. Gerbing and Anderson (1984) suggest that if allowing for correlations results in an improvement of the fit of the model, observed covariation between the indicators have not sufficiently been regarded during the development of the measure. This also means that this covariance is caused by at least one source that was not accounted for, indicating that an exploratory rather than a confirmatory factor analysis might be preferable (Gerbing & Hamilton, 1996), indicating that redesigning the questionnaire might be necessary for the patient group of BD.

In its original form, the correlations between the three role dimensions role importance, satisfaction with time spent in role, and satisfaction with their role performance and salience were found to be low, which was interpreted as these dimensions being distinct (Gignac et al., 2008). However, the two dimensions of satisfaction with time spent in role and satisfaction with their role performance were highly correlated and Gignac et al. (2008) suggested that further research is needed to test whether these two dimensions are too similar

and should be combined. Oude Voshaar et al. (2016) picked up this issue and removed the satisfaction with time spent dimension and replaced it with the experienced difficulties dimension due to the high correlations. It is scientific consent that a scale can be invalidated if there are too high correlations with other scales that aim at measuring (slightly) different constructs (Boateng et al., 2018; Campbell & Fiske, 1959; Messick, 1995). Additional research is needed to examine whether the two dimensions of the s-SRPQ are too similar and therefore, instead of measuring two facets of social role participation are rather measuring opposites of the same facet. Based on such findings, the design of the s-SRPQ can be revised resulting in a potentially better model fit.

Cronbach's Alpha and McDonald's Omega indicate acceptable internal consistency of the *Satisfaction with Social Role* dimension. For the *Difficulties with Social Role* dimension, good internal consistency was found, which is slightly lower compared to the Cronbach's Alpha in earlier studies conducted with AS patients (Akyol et al., 2018; Oude Voshaar et al., 2016). If taking into account that Cronbach's Alpha is sensitive to sample sizes (Bujang, 2018) and also the McDonald's Omega attesting good internal consistency, it can be concluded that the s-SRPQ is an internally consistent measure when used for individuals with BD.

The s-SRPQ scores were significantly related to all validation measures: personal recovery, positive emotions, positive relationships, depressive and anxiety symptoms. All relationships were in line with the previously developed hypotheses. As expected, a strong relationship was found between the *Satisfaction with Social Role* dimension and personal recovery. This finding coincides with an earlier study (Kraiss et al., 2019) and supports the earlier established hypothesis that social role participation significantly contributes to personal recovery from severe mental health disorders such as BD (Jaeger & Hoff, 2012; Kraiss et al., 2021). When designing interventions to help individuals with BD increase their

participation in different social roles, such as by fostering intimate relationships or the ability to work, feelings of relatedness and meaning in life can be created (Kraiss et al., 2021). Therefore, making increasing social role participation a treatment goal for patients with BD might significantly contribute to their personal recovery. Another strong relationship was found between the *Satisfaction with Social Role* dimension and positive emotions, indicating that respondents who were highly satisfied with their role were also likely to experience positive emotions. These findings are in line with Fredrickson's (2003) Broaden-and-Build Theory which entails that positive emotions can broaden the mindset and therefore lead to the discovery of novel ideas and especially social bonds. At the same time, positive emotions are also building physical, intellectual, and social resources which are more lasting and permanent than the positive emotions themselves (Cohn & Fredrickson, 2009; Fredrickson, 1998). Therefore, experiencing more positive emotions is hypothesized to build social resources which facilitate and support social role participation.

The relationship between the s-SRPQ and measures of depression and anxiety indicate that more satisfaction with the social roles is associated with fewer symptoms and greater difficulty with social roles is associated with the experience of more depressive and anxiety symptoms. Similar results could be found for personal recovery in a study by Kraiss et al. (2019), where a strong negative relationship between personal recovery and anxiety and depressive symptoms was found, indicating that both social role participation and personal recovery have a positive effect on fewer symptoms. These results are in line with the findings of Nadinloyi et al. (2013), who have shown that higher satisfaction with the social role in the workplace is associated with lower depressive and anxiety symptoms. All relationships were found to be in the previously established direction. Taking into account that convergent validity is established when the scale is relating to measures of the same or similar constructs (Krabbe, 2017), such as personal recovery, positive emotions, and positive relationships, it

can be concluded that the current findings imply convergent validity. Furthermore, it can be concluded that social participation does not only seem to be relevant in the context of personal recovery but considering its association with anxiety and depressive symptoms, also when aiming at increasing clinical recovery.

The results of the multiple hierarchical regression analyses propose incremental validity of the s-SRPQ. According to Haynes and Lench (2003), incremental validation can indicate that more than one measure is necessary to adequately assess a concept, which seems to be the case for personal recovery, based on the current findings. The s-SRPQ explained a significant amount of additional variance in personal recovery above and beyond depressive and anxiety symptoms. Therefore, these results emphasize the importance of measuring and focusing on social role participation in clinical practice next to depressive and anxiety symptoms when aiming at improving the personal recovery of individuals with BD. Furthermore, these findings also accentuate the need for interventions specifically aiming at social role participation, rather than only decreasing symptoms when aiming at increasing personal recovery. According to a review of social participation interventions for individuals with mental health issues, such interventions can support employment, community engagement, building supporting and trusting relationships (Webber & Fendt-Newlin, 2017), which seems of specific importance for individuals with BD, considering the impoverishment of social relationships that often goes along with the disease (Kulhara et al., 1999; Romans & McPherson, 1992).

Limitations, Future Research, and Implications

There are several limitations to this research that need to be considered when discussing the findings of the current study. Firstly, a relatively small sample size was used for the current study. MacCallum et al. (1999) suggest that a good sample size for conducting factor analyses is between 500 and 1000. For the multivariate regression analysis conducted,

however, it is recommended to include at least 10 participants per parameter in the model (Hu & Bentler, 1999), implying that this limitation mostly applies to the factor analysis. Nevertheless, the current study contains a rather rare clinical group of individuals diagnosed with BD and therefore gives a good first insight into the psychometric properties of the s-SRPQ in patients with BD. Future research is recommended to evaluate its psychometric properties in a larger clinical sample of patients with BD. Secondly, a cross-sectional design was used and therefore, no inferences can be made about the longitudinal relationship and causality of the analysed constructs. Furthermore, other psychometric properties such as test-retest reliability of the s-SRPQ could not be investigated. Lastly, even though the s-SRPQ is supposed to be a global measure, the possibility of certain items being inappropriate for clinical populations and especially populations with BD, cannot be ruled out. Therefore, future research should examine this questionnaire qualitatively in order to evaluate its effect on patients with BD.

Despite the established limitations, the results of the current study give an indication that the s-SRPQ is a valid and reliable tool for measuring social role participation in individuals with BD but that the factor structure could not be confirmed. Considering that patients with mental illnesses have indicated across various studies that there is a high need for a focus on personal recovery in clinical treatment (Jones et al., 2012; Pitt et al., 2007; Slade, 2009) and that social role participation contributes to personal recovery from several chronic impairments and psychiatric disorders such as BD (Kraiss et al., 2021, Jaeger & Hoff, 2012), it seems essential to monitor and actively target social role participation when trying to improve personal recovery. The finding that social role participation explained variance in personal recovery above and beyond anxiety and depressive symptoms emphasizes this need of not only focussing on decreasing symptoms but also on supporting and facilitating social role participation. In clinical practice, monitoring social role participation can give

professionals the opportunity to identify deficiencies with regard to social roles and design interventions targeted at combating these deficiencies. When screening for social participation at the start of clinical treatment, resources relating to participation in different social groups can be identified. Throughout treatment, professionals can make use of this strength-based approach as these resources can protect patients from negative bias and therefore build social buffers (Rashid & Ostermann, 2009). It is hypothesized that identifying the social roles patients are already satisfied with can facilitate looking for social support in these social contexts. Considering that lower levels of social support predict the recurrence of a depressive episode in patients with BD (Cohen et al., 2004), identifying such roles with the aim of increasing participation and receiving social support may contribute to the recovery from BD.

Conclusion

The present findings suggest that the s-SRPQ is a reliable and valid measure to assess social role participation in individuals with BD, based on the internal consistency, convergent validity, and incremental validity. However, considering the poor fit of the previously established factor structure, redesigning the questionnaire for individuals with BD seems to be necessary. One of the main findings next to the psychometric properties is that social role participation does not only seem to be relevant in the context of personal recovery but considering its association with anxiety and depressive symptoms, also when aiming at increasing clinical recovery. Based on the current results, the s-SRPQ can be used in research settings as well as in clinical settings with the aim of designing interventions targeting social participation and therefore supporting personal and clinical recovery from BD.

References

Alda, M., & Manchia, M. (2018). Personalized management of bipolar disorder.

    Neuroscience Letters, *669*, 3–9. https://doi.org/10.1016/j.neulet.2017.12.005

American Psychiatric Association. (n.d.). What Are Bipolar Disorders? APA. Retrieved

    September 24, 2021, from https://www.psychiatry.org/patients-families/bipolar-

    disorders/what-are-bipolar-disorders

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental

    health service system in the 1990s. *Psychosocial Rehabilitation Journal, 16*(4), 11–

    23. https://doi.org/10.1037/h0095655

Akyol, Y., Ulus, Y., Terzi, Y., Bilgici, A., and Kuru, O. (2018). Reliability and Validity of

    Turkish Version of Short Form of the Social Role Participation Questionnaire in

    Patients With Ankylosing Spondylitis. *Archives of Rheumatology*, *33*(4), 408–417.

    https://doi.org/10.5606/archrheumatol.2018.6756

Blairy, S., Linotte, S., Souery Papadimitrioub, G.N., Dikeosb, D., Lererc, B., Kanevad, R.

    Milanovad, V., Serrettie, A., Macciardie, F., and Mendlewicza, J. (2004). Social

    adjustment and self-esteem of bipolar patients: a multicentric study. *Journal of*

    Affective Disorders, *79*(1–3), 97–103. https://doi.org/10.1016/s0165-0327(02)00347-6

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L.

    (2018). Best Practices for Developing and Validating Scales for Health, Social, and

    Behavioral Research: A Primer. *Frontiers in public health*, *6*, 149.

    https://doi.org/10.3389/fpubh.2018.00149

Bujang, M. A., Omar, E. D., & Baharum, N. A. (2018). A Review on Sample Size

    Determination for Cronbach's Alpha Test: A Simple Guide for Researchers. *The*

    Malaysian journal of medical sciences: MJMS, *25*(6), 85–99.

    https://doi.org/10.21315/mjms2018.25.6.9

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the

    multitrait-multimethod matrix. *Psychological Bulletin*, *56*(2), 81–105.

    https://doi.org/10.1037/h0046016

Cohen, A. N., Hammen, C., Henry, R. M., & Daley, S. E. (2004). Effects of stress and social

    support on recurrence in bipolar disorder. *Journal of Affective Disorders*, *82*(1), 143–

    147. https://doi.org/10.1016/j.jad.2003.10.008

Cohn, M. A., & Fredrickson, B. L. (2009). Positive emotions. In S. J. Lopez & C. R. Snyder

    (Eds.), Oxford handbook of positive psychology (2nd ed., pp. 13–24). New York,

    NY: Oxford University Press.

Cotrena, C., Branco, L. D., Shansis, F. M., & Fonseca, R. P. (2016). Executive function

    impairments in depression and bipolar disorder: association with functional

    impairment and quality of life. *Journal of Affective Disorders, 190*, 744–753

    https://doi.org/10.1016/j.jad.2015.11.007

Davis, A. M., Palaganas, M. P., Badley, E. M., Gladman, D. D., Inman, R. D., & Gignac, M.

    A. (2011). Measuring participation in people with spondyloarthritis using the social

    role participation questionnaire. *Annals of the Rheumatic Diseases, 70*(10), 1765–

    1769. https://doi.org/10.1136/ard.2010.149211

de Vaus, D. (2002). Analyzing Social Science Data. 50 Key Problems in Data Analysis. Sage,

    London, The United Kingdom.

Dunn, T. J., Baguley, T., & Brunsden, V. (2013). From alpha to omega: A practical solution

    to the pervasive problem of internal consistency estimation. *British Journal of*

    Psychology, *105*(3), 399–412. https://doi.org/10.1111/bjop.12046

Engelen U., De Peuter S., Victoir A., Van Diest I., Van den Bergh O. (2006). Verdere

    validering van de Positive and Negative Affect Schedule (PANAS) en vergelijking

van twee Nederlandstalige versies. *Gedrag en gezondheid, 34*(2), 61–70.

https://doi.org/doi.org/10.1007/BF03087979

Fagiolini, A., Kupfer, D. J., Masalehdan, A., Scott, J. A., Houck, P. R., & Frank, E. (2005).

Functional impairment in the remission phase of bipolar disorder. *Bipolar*

Disorders, *7*(3), 281–285. https://doi.org/10.1111/j.1399-5618.2005.00207.x

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of

clinical assessment instruments. *Psychological Assessment, 7*(3), 286–299.

https://doi.org/10.1037/1040-3590.7.3.286

Fredrickson, B. L. (1998). What Good Are Positive Emotions? *Review of General*

Psychology, *2*(3), 300–319. https://doi.org/10.1037/1089-2680.2.3.300|

Fredrickson, B. L. (2003). The Value of Positive Emotions: The emerging science of positive

psychology is coming to understand why it's good to feel good. *American*

Scientist, *91*(4), 330–335. http://www.jstor.org/stable/27858244\

Gerbing, D. W., & Anderson, J. C. (1984). On the Meaning of within-Factor Correlated

Measurement Errors. *Journal of Consumer Research*, *11*(1), 572.

https://doi.org/10.1086/208993

Gerbing, D. W., & Hamilton, J. G. (1996). Viability of exploratory factor analysis as a

precursor to confirmatory factor analysis. *Structural Equation Modeling: A*

Multidisciplinary Journal, *3*(1), 62–72. https://doi.org/10.1080/10705519609540030

Gignac, M. A. M., Beckman, C. L., Davi, A. M., Lecaille, D., Mattison, C. A., Montie, P., &

Badley, E. M. (2008). Understanding Social Role Participation: What Matters to

People with Arthritis? *The Journal of Rheumatology, 35*(8), 1655–1663.

https://www.jrheum.org/content/jrheum/35/8/1655.full.pdf

Gonda, X., Pompili, M., Serafini, G., Montebovi, F., Campi, S., Dome, P., Duleba, T.,

Girardi, P., & Rihmer, Z. (2012). Suicidal behavior in bipolar disorder: Epidemiology,

characteristics and major risk factors. *Journal of Affective Disorders*, *143*(1–3), 16–26. https://doi.org/10.1016/j.jad.2012.04.041

Goodwin, F. K., & Jamison, K. R. (2007). Manic-depressive illness: bipolar disorders and recurrent depression (Vol. 2). Oxford University Press.

Hayes, A. F., & Coutts, J. J. (2020). Use omega rather than Cronbach's alpha for estimating reliability. But... *Communication Methods and Measures, 14*, 1-24. https://doi.org/10.1080/19312458.2020.1718629

Haynes, S. N., & Lench, H. C. (2003). Incremental Validity of New Clinical Assessment Measures. *Psychological Assessment*, *15*(4), 456–466. https://doi.org/10.1037/1040-3590.15.4.456

Hirschfeld, R. M., Williams, J. B., Spitzer, R. L., Calabrese, J. R., Flynn, L., Keck, P. E., Lewis, L., McElroy, S. L., Post, R. M., Rapport, D. J., Russell, J. M., Sachs, G. S., & Zajecka, J. (2000). Development and Validation of a Screening Instrument for Bipolar Spectrum Disorder: The Mood Disorder Questionnaire. *American Journal of Psychiatry*, *157*(11), 1873–1875. https://doi.org/10.1176/appi.ajp.157.11.1873

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

IBM Corp. Released 2020. IBM SPSS Statistics for Macintosh, Version 27.0. Armonk, NY: IBM Corp

IsHak, W. W., Brown, K., Aye, S. S., Kahloon, M., Mobaraki, S., & Hanna, R. (2012). Health-related quality of life in bipolar disorder. *Bipolar Disorders*, *14*(1), 6–18. https://doi.org/10.1111/j.1399-5618.2011.00969.x

Jaeger, M., & Hoff, P. (2012). Recovery. *Current Opinion in Psychiatry*, *25*(6), 497–502. https://doi.org/10.1097/yco.0b013e328359052f

Jones, S., Higginson, S., Murray, C., & Morrison, A. P. (2010). Recovery experiences in bipolar disorder. Paper presented at the British Association for Behavioural and Cognitive Psychotherapy Annual Conference, Manchester, UK.

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). https://doi.org/10.1186/1471-244x-12-204

Judd, L. L., Akiskal, H. S., Schettler, P. J., Coryell, W., Endicott, J., Maser, J. D., Solomon, D. A., Leon, A. C., & Keller, M. B. (2003). A Prospective Investigation of the Natural History of the Long-term Weekly Symptomatic Status of Bipolar II Disorder. *Archives of General Psychiatry, 60*(3), 261. https://doi.org/10.1001/archpsyc.60.3.261

Judd, L. L., Akiskal, H. S., Schettler, P. J., Endicott, J., Maser, J., Solomon, D. A., Leon, A. C., Rice, J. A., & Keller, M. B. (2002). The Long-term Natural History of the Weekly Symptomatic Status of Bipolar I Disorder. *Archives of General Psychiatry, 59*(6), 530. https://doi.org/10.1001/archpsyc.59.6.530

Kasper, S. (2003). Issues in the treatment of bipolar disorder. *European Neuropsychopharmacology*, *13*, 37–42. https://doi.org/10.1016/s0924-977x(03)00076-2

Kleine-Budde, K., Touil, E., Moock, J., Bramesfeld, A., Kawohl, W., & Rössler, W. (2013). Cost of illness for bipolar disorder: a systematic review of the economic burden. *Bipolar Disorders*, *16*(4), 337–353. https://doi.org/10.1111/bdi.12165

Kline, R. B. (1998). Principles and practice of structural equation modeling. New York: Guilford.

Krabbe, P. F. (2017). Validity. *The Measurement of Health and Health Status*, 113–134.

https://doi.org/10.1016/b978-0-12-801504-9.00007-6

Kraiss, J. T., ten Klooster, P. M., Chrispijn, M., Stevens, A. W., Kupka, R. W., &.

Bohlmeijer, E. T. (2019). Psychometric properties and utility of the Responses to

Positive Affect questionnaire (RPA) in a sample of people with bipolar

disorder. *Journal of Clinical Psychology*, *75*(10), 1850–1865.

https://doi.org/10.1002/jclp.22819

Kraiss, J. T., ten Klooster, P. M., Chrispijn, M., Trompetter, H. R., Stevens, A. W., Neutel,

E., Kupka, R. W., & Bohlmeijer, E. T. (2018). B-positive: a randomized controlled

trial of a multicomponent positive psychology intervention for euthymic patients with

bipolar disorder - study protocol and intervention development. *BMC Psychiatry,

18*(1). https://doi.org/10.1186/s12888-018-1916-3

Kraiss, J. T., ten Klooster, P. M., Frye, E., Kupka, R. W., & Bohlmeijer, E. T. (2021).

Exploring factors associated with personal recovery in bipolar disorder. *Psychology

and Psychotherapy: Theory, Research and Practice*, *94*(3), 667–685.

https://doi.org/10.1111/papt.12339

Kulhara, P., Basu, D., Mattoo, S. K., Sharan, P., & Chopra, R. (1999). Lithium prophylaxis of

recurrent bipolar affective disorder: Long-term outcome and its psychosocial

correlates. *Journal of Affective Disorders*, *54*(1–2), 87–96.

https://doi.org/10.1016/s0165-0327(98)00145-1

Leboyer, M., & Kupfer, D. J. (2010). Bipolar Disorder. *The Journal of Clinical Psychiatry*,

71(12), 1689–1695. https://doi.org/10.4088/jcp.10m06347yel

Law, H., Neil, S. T., Dunn, G., & Morrison, A. P. (2014). Psychometric properties of the

Questionnaire about the Process of Recovery (QPR). *Schizophrenia Research*, *156*(2–

3), 184–189. https://doi.org/10.1016/j.schres.2014.04.011

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor

   analysis. *Psychological Methods*, *4*(1), 84–99. https://doi.org/10.1037/1082-

   989x.4.1.84

Messick, S. (1995). Validity of psychological assessment: Validation of inferences from

   persons' responses and performances as scientific inquiry into score meaning.

   American Psychologist, *50*(9), 741–749. https://doi.org/10.1037/0003-066x.50.9.741

Michalak, E. E., Yatham, L. N., & Lam, R. W. (2005). Quality of life in bipolar disorder: A

   review of the literature. *Health and Quality of Life Outcomes*, *3*(1).

   https://doi.org/10.1186/1477-7525-3-72

Miller, C. J., Klugman, J., Berv, D. A., Rosenquist, K., Ghaemi, S. N. (2004). Sensitivity and

   specificity of the Mood

 Disorder Questionnaire for detecting bipolar disorder. *Journal of Affective Disorders*, *81*(2),

   167–171. https://doi.org/10.1016/s0165-0327(03)00156-3

Merikangas, K. R., Jin, R., He, J. P., Kessler, R. C., Lee, S., Sampson, N. A., ... & Zarkov, Z.

   (2011). Prevalence and correlates of bipolar spectrum disorder in the world mental

   health survey initiative. Archives of general psychiatry, 68(3), 241-251.

Mezes, B., Lobban, F., Costain, D. Longson, D., & Jones, S. H. (2021). Psychological factors

   in personal and clinical recovery in bipolar disorder. *Journal of Affective Disorders,*

   280, 326-377. https://doi.org/10.1016/j.jad.2020.11.044

Nadinloyi, K. B., Sadeghi, H., & Hajloo, N. (2013). Relationship Between Job Satisfaction

   and Employees Mental Health. *Procedia - Social and Behavioral Sciences*, *84*, 293–

   297. https://doi.org/10.1016/j.sbspro.2013.06.554

Neil, S. T., Kilbride, M., Pitt, L., Nothard, S., Welford, M., Sellwood, W., & Morrison, A. P.

   (2009). The questionnaire about the process of recovery (QPR): A measurement tool

developed in collaboration with service users. Psychosis, 1(2), 145–155.

https://doi.org/1080/17522430902913450

Oude Voshaar, M., van Onna, M., van Genderen, S., van de Laar, M., van der Heijde, D.,

Heuft, L., Spoorenberg, A., Luime, J., Gignac, M., & Boonen, A. (2016).

Development and Validation of a Short Form of the Social Role Participation

Questionnaire in Patients with Ankylosing Spondylitis. The Journal of Rheumatology,

43(7), 1386–1392. https://doi.org/10.3899/jrheum.151013

Pitt, L., Kilbride, M., Nothard, S., Welford, M., & Morrison, A. P. (2007). Researching

recovery from psychosis: a user-led project. Psychiatric Bulletin, 31(2), 55–60.

https://doi.org/10.1192/pb.bp.105.008532

Pompili, M. (2014). Impact of living with bipolar patients: Making sense of caregivers'

burden. *World Journal of Psychiatry*, *4*(1), 1. https://doi.org/10.5498/wjp.v4.i1.1

Rashid, T., & Ostermann, R. F. (2009). Strength-based assessment in clinical

practice. *Journal of Clinical Psychology*, *65*(5), 488–498.

https://doi.org/10.1002/jclp.20595

Romans, S. E., & McPherson, H. M. (1992). The social networks of bipolar affective disorder

patients. *Journal of Affective Disorders*, *25*(4), 221–228.

https://doi.org/10.1016/0165-0327(92)90079-l

Rönkkö, M., & Cho, E. (2020). An Updated Guideline for Assessing Discriminant

Validity. *Organizational Research Methods*, *25*(1), 6–14.

https://doi.org/10.1177/1094428120968614

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of

Statistical Software*, *48*(2), 1–36. https://www.jstatsoft.org/v48/i02/.

Rush, A., Trivedi, M. H., Ibrahim, H. M., Carmody, T. J., Arnow, B., Klein, D. N.,

Markowitz, J. C., Ninan, P. T., Kornstein, S., Manber, R., Thase, M. E., Kocsis, J. H.,

& Keller, M. B. (2003). The 16-Item quick inventory of depressive symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): a psychometric evaluation in patients with chronic major depression. *Biological Psychiatry*, *54*(5), 573–583. https://doi.org/10.1016/s0006-3223(02)01866-8

Ryff C. D., Keyes C. L. M. (1995). The structure of psychological well-being revisited. Journal of Personality and Social Psychology, 69(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719

Salagre, E., Vieta, E., & Grande, I. (2020). Personalized treatment in bipolar disorder. *Personalized Psychiatry*, 423–436. https://doi.org/10.1016/b978-0-12-813176-3.00035-3

Sieper, J., Braun, J., Rudwaleit, M., Boonen, A., & Zink, A. (2002). Ankylosing spondylitis: an overview. *Annals of the Rheumatic Diseases*, *61*(Supplement 3), 8iii–18. https://doi.org/10.1136/ard.61.suppl_3.iii8

Slade, M. (2009). *Personal Recovery and Mental Illness*. Cambridge University Press.

Spinhoven, P., Ormel, J., Sloekers, P. P. A., Kempen, G. I. J. M., Speckens, A. E. M., & Hemert, A. M. V. (1997). A validation study of the Hospital Anxiety and Depression Scale (HADS) in different groups of Dutch subjects. *Psychological Medicine*, *27*(2), 363–370. https://doi.org/10.1017/s0033291796004382

van Dierendonck, D. (2004). The construct validity of Ryff's Scales of Psychological Well-being and its extension with spiritual well-being. *Personality and Individual Differences*, *36*(3), 629–643. https://doi.org/10.1016/s0191-8869(03)00122-3

Wardenaar, K. J., van Veen, T., Giltay, E. J., den Hollander-Gijsman, M., Penninx, B. W., & Zitman, F. G. (2010). The structure and dimensionality of the Inventory of Depressive Symptomatology Self Report (IDS-SR) in patients with depressive disorders and

healthy controls. *Journal of Affective Disorders*, *125*(1–3), 146–154.

https://doi.org/10.1016/j.jad.2009.12.020

Warwick, H., Tai, S., & Mansell, W. (2019). Living the life you want following a diagnosis

of bipolar disorder: A grounded theory approach. *Clinical Psychology &*

Psychotherapy, 26(3), 326-377. https://doi.org/10.1002/cpp.2358

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief

measures of positive and negative affect: The PANAS scales. *Journal of Personality*

and Social Psychology, *54*(6), 1063–1070. https://doi.org/10.1037/0022-

3514.54.6.1063

Werner, C., & Schermelleh-Engel, K. (2010, February). *Deciding Between Competing*

Models: Chi-Square Difference Tests. Goethe University, Frankfurt.

https://www.psychologie.uzh.ch/dam/jcr:ffffffff-b371-2797-0000-

00000fda8f29/chisquare_diff_en.pdf

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. Acta

Psychiatrica Scandinavica, 67(6), 361–370. https://doi.org/10.1111/j.1600-

0447.1983.tb09716.x