# Predictors of Personal Recovery and Well-being in Bipolar Disorder

by

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## Abstract

In recent years, a mental health consumer movement induced a humanistic paradigm shift in mental health care, emphasizing personal recovery as opposed to the prevailing therapy aim of clinical recovery only. Regarding bipolar disorder (BD) and its chronic course, the high psychological strain and long-term impairment calls for a way to enable the patients to attain personal recovery in order to lead a satisfying and meaningful life. However, little is known about the contributing factors for personal recovery in BD. The construct of well-being shows many similarities to personal recovery, which leads to the question in how far these two constructs resemble one another or differ from each other. The aim of this study was to extend current knowledge by identifying correlates of personal recovery and well-being from a broad range of potentially relevant aspects. In a cross-sectional survey study, 119 participants with BD completed questionnaires assessing personal recovery and the closely related construct of well-being as criterions. Sociodemographic (e.g. age, gender), clinical (e.g. type of diagnosis, whether currently in treatment) and specific psychological variables (response to positive affect; RPA, & social role participation; S-SRPQ) were assessed as potential correlates. Per criterion, a block-wise multiple regression analysis was conducted. The total explained variance per regression model was 65.6% for personal recovery and 64.2% for well-being. Better personal recovery, as well as higher well-being, were associated with shorter duration of treatment (PR: $\beta = -.221$, $p < .05$; WB: $\beta = -.289$, $p < .05$) and higher satisfaction with social role participation (PR: $\beta = .411$, $p < .001$; WB: $\beta = .475$, $p < .001$). Female gender was positively associated with well-being ($\beta = .238$, $p < .05$), but not with personal recovery. The assumed strong similarity between the concepts of personal recovery and well-being was substantiated by these findings, as both constructs had similar correlates, with the exception of gender.

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## Introduction

Bipolar disorder (BD) is a chronic mental disorder which is characterized by recurring extreme shifts in mood and energy. The American Psychiatric Association (APA; 2013) distinguishes two types of BD. Bipolar disorder I (BDI) is marked by depressive, as well as manic episodes, while people with bipolar disorder II (BDII) experience depressive and hypomanic mood episodes, without the presence of full-blown manic episodes (Grande, Berk, Birmaher, & Vieta, 2016; Miller, Dell'Osso, & Ketter, 2014). Based on a meta-analysis including 25 studies, Clemente et al. (2015) estimated the disorder's lifetime prevalence to be 1.1% for BDI, and 1.6% for BDII. Despite its relatively low prevalence, the annual economic burden on society and healthcare is estimated to be £4.59 billion in the UK (Fajutrao, Locklear, Priaulx, & Heyes, 2009), and $202.1 billion, with an average of $81.559 per patient in the US (Cloutier, Greene, Guerin, Touya, & Wu, 2018). The primary contributors to the disorder's high costs are the direct costs of healthcare and caregiving and the indirect costs of unemployment (Cloutier et al., 2018; Miller et al., 2014).

For those affected, BD is associated with reduced quality of life (QoL; Dean, Gerner, & Gerner, 2004; Murray et al., 2017), impaired occupational and social functioning (Calabrese et al., 2003; Greenberg, Rosenblum, McInnis, & Muzik, 2014; Fajutrao et al., 2009; Gitlin, Swendsen, Heller, & Hammen, 1995), cognitive impairments (Arts, Jabben, Krabbendam, & Van Os, 2008), and high suicide, morbidity and hospitalization rates (Angst, Stassen, Clayton, & Angst, 2002; Miller et al., 2014).

Although pharmacotherapy in the form of mood-stabilizers or antipsychotics is the most commonly applied treatment for BD, the combination of pharmacotherapy and psychological interventions has been found to contribute to a more effective treatment than pharmacotherapy alone (Geddes & Miklowitz, 2013). The prevailing aim of such therapy is generally clinical recovery; the decrease of both psychopathological symptoms and relapses into mood episodes. This disease model of human functioning derived from the idea of

repairing damage after World War II and has been the main goal of treatment in the past century (Murray et al., 2017; Oud et al., 2016; Seligman, 2002). However, the effectiveness of prevailing therapies has been found to be either low, or non-existent. While some existing psychological interventions show an impact on the severity of clinical symptoms (Oud et al., 2016), treatment in BD usually fails to acknowledge or address euthymic phases; non-acute phases of BD which are present about 50% of the time (Samalin, de Chazeron, Vieta, Bellivier, & Llorca, 2016; Thompson et al., 2005). As a consequence, personally relevant aspects such as QoL and psychological functioning are usually not or only minimally improved (Gregory, 2010a; Gregory, 2010b; Salcedo et al., 2016; Szentagotai & David, 2010; Zhang et al., 2006).

Given these shortcomings, there is a growing awareness that the mere attainment of clinical recovery, the remission of symptoms, is insufficient to enable the patients' functional and personal recovery. The disorder's chronic course, high psychological strain and the long-term impairment that people with BD experience, calls for a way to enable patients to attain personal recovery in order to lead a satisfying and meaningful life despite the presence of disorder.

In recent years and consistent with these required changes in the focus of treatment, the mental health consumer movement induced a humanistic paradigm shift in mental health care, emphasizing personal recovery as opposed to the prevailing therapy aim of clinical recovery (Bonnín et al., 2019; Murray et al., 2017; Pitt, Kilbride, Nothard, Welford, & Morrison, 2007). According to Anthony (1993), who formulated the most widely acknowledged and cited definition, personal recovery is:

> a deeply personal, unique process of changing one’s attitudes, values, feelings, goals, skills and 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. (p. 527)

Leamy, Bird, Le Boutillier, Williams, and Slade (2011) investigated patients' therapy aims, consumers' needs and researchers' understanding of personal recovery through a systematic review. They identified a conceptual framework for personal recovery, consisting of the five most relevant processes for recovery: connectedness, hope and optimism about the future, identity, meaning in life, and empowerment (CHIME).

Another presumably important concept in the process of recovery is social role participation, which describes the ability to fulfill social roles (Whitley & Drake, 2010). Personal recovery involves the restoration and maintenance of social functioning, including social role participation (Schrank & Slade, 2007). It has been found to contribute to building and maintaining autonomy and self-esteem (Gordeev et al., 2010). The presumed general importance of social role participation for personal recovery is specifically important for BD patients, since low social support, insecure attachment relationships, social isolation and high social stigma are only a few examples of the impaired social life that pose a high additional burden on people with BD (Greenberg et al., 2014).

As a consequence of its newly recognized importance, endorsed by health care providers, users, researchers and governments, personal recovery has increasingly become the primary treatment goal for people with persistent mental disorders such as BD (Fava, Ruini, & Belaise, 2007; Jones, Mulligan, Higginson, Dunn, & Morrison, 2013; Song & Hsu, 2011).

Independent from the mental health patients' movement towards personal recovery but in accordance with its principles, the movement of positive psychology by Seligman and Csikszentmihalyi (2000) emerged two decades ago in psychological science. Similar to the newly set focus on personal recovery, positive psychology was also developed as a counter model to the problem-focused clinical psychology. Positive psychology follows the aim to foster well-being, by addressing the individual's strengths, resources and other positive aspects (Seligman, 2002; Sheldon & King, 2001; Slade, 2010). Compatible with positive

psychology, the World Health Organization (WHO; 2004) incorporates well-being into their definition of mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (p.12).

Despite the separate developments of positive psychology as devised by psychologists and the focus on personal recovery which was initiated by patients themselves, clear similarities between the concepts of well-being and personal recovery are noticeable. Both concepts were developed as a response to the disease model of human functioning, and both focus on the use of the individual's resources in order to attain or restore optimal functioning and better QoL. Furthermore, both concepts acknowledge the fact that health is more than the mere absence of disease, as well-being and personal recovery can occur in the presence of disease. Likewise, well-being and personal recovery can also be absent in the absence of any clinical symptoms (Murray et al., 2017; Slade, 2010). Moreover, there is evidence of the capability of mental health to buffer against mental illness (Lamers, Westerhof, Glas, & Bohlmeijer, 2015; Keyes, Dhingra, & Simoes, 2010). Existing questionnaires for the assessment of both concepts (MHC-SF (well-being); Keyes, 2002; Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011, and QPR (personal recovery); Neil et al., 2009) also show high similarities contentwise.

Just as for personal recovery during the past years, well-being has increasingly been recognized as a desirable goal of treatment in the mental health care (Park et al., 2014; Slade, 2010; Song & Hsu, 2011). Given the high apparent overlap of the two concepts, an investigation of the relation and differences between personal recovery and well-being could provide useful information about both concepts. This could further be used to inform effective treatment, by incorporating aspects into therapy which promote both concepts, in order to obtain the greatest possible therapeutic effect.

In general, this new development in mental health care brings along important implications for the treatment of BD. However, research about underlying processes of personal recovery and associated factors is still in its early stages (Bonnín et al., 2019; Markowitz, 2001; Murray et al., 2017). Although predictors of personal recovery in BD have been investigated before, research to date has primarily examined disorder-focused factors, such as the handling of impairments and pathological symptoms (e.g. mood swings). In a study by Dodd et al. (2017), potential correlates were investigated amongst variables such as depressive and manic symptoms, appraisals of hypomanic and depressive symptoms, (self-referent) appraisals and beliefs about mood swings and illness perception (emotional and cognitive representations of illness). Poor recovery in BD was found to be associated with negative appraisals of internal states, the self, psychopathological symptoms and negative illness models. Better recovery was found to be promoted by normalizing appraisals of the disorder's implications and positive illness models. Noticeable here is the focus on the sufferer's handling and interpretation of clinical symptoms, while key components of personal recovery (the CHIME framework, Leamy et al. 2011) weren't considered by Dodd et al. (2017) and other researchers.

As opposed to such research mainly concerning the sufferer's reaction to clinical symptoms and negative affect (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Dodd et al., 2017), only little research has been conducted concerning personal recovery and responses to positive affect. The reaction to positive affective states is not only a seldomly considered aspect within research of BD, but it also has relevant implications for people with BD. Research has shown that the way people with BD cognitively react to positive affective states is associated with clinical symptoms such as relapse into mood episodes. Suppression of positive emotion, called dampening, for example, has been associated with less life-satisfaction (Quoidbach, Berry, Hansenne, & Mikolajczak, 2010), increased emotional reactivity, as well as heightened risk for depressive and manic symptoms (Gilbert, Nolen-

Hoeksema, & Gruber, 2013). Given these implications for clinical symptoms, it is of particular interest to examine the association between responses to positive affect and the positively connoted personal recovery, as opposed to the negatively connoted clinical symptoms.

Moreover, little is known about the predictive value of sociodemographic and clinical variables on personal recovery in people with BD. In order to expand the current knowledge about personal recovery and its correlates, it is necessary to examine a wide field of variables through exploratory research. Knowledge about the predictive value of sociodemographic and clinical variables for personal recovery and well-being could be used to inform effective and individualized treatment for BD. That way, interventions could be tailored to potentially important factors such as age groups or gender.

The aim of this study is to extend current knowledge about personal recovery by identifying predictors that reach beyond the disorder's clinical symptoms and their appraisals. In doing so, sociodemographic variables, clinical variables and specific psychological concepts, namely social role participation and responses to positive affect, will be examined as potential correlates.

In a second step, the differentiation between the closely related concepts of personal recovery and well-being will be explored. For that purpose, correlates of well-being will be analyzed and contrasted to those of personal recovery. For the analyses of this exploratory research, an existing dataset collected by Kraiss, ten Klooster, Chrispijn, Stevens, Kupka, & Bohlmeijer (2019a) will be reanalyzed.

# Method

## Participants

In the study of Kraiss et al. (2019a), 119 voluntary patient members of the Dutch Patient Association for bipolar Patients and their Relatives (Vereniging voor Manisch Depressieven en Betrokkenen; VMDB) were recruited as participants through convenience sampling. An invitation for participation reached the patient members per mail, as well as through a notice in the association's newsletter. Enrollment was voluntary and the participant's diagnoses of BD were self-reported without validation through diagnostics. As an incentive, ten shopping vouchers for 50€ each were raffled among all participants who completed the survey. The study was approved by the Ethics Committee of the Faculty of Behavioral, Management, and Social Sciences of the University of Twente.

## Procedure

The data was collected between April and July 2018 in a cross-sectional survey conducted by Kraiss et al. (2019a). A link embedded into the invitation mail and the association's newsletter forwarded potential participants to the online survey programme LimeSurvey.

After being forwarded to the programme, participants received information about the survey, their rights and the confidential processing of data in a written form. Thereafter, active online informed consent was given by each participant. Participants were asked to give demographic information, before filling in a test battery of six consecutive questionnaires that measured specific constructs of interest. These questionnaires will be described in more detail in the following section. After completing the questionnaires, participants had the option to take part in the lottery by entering their email-address at the end of the survey. These email-addresses were stored independently from the main data and were deleted after the raffle. The process of participation took approximately 15-20 minutes.

## Measurements

### Criterions.

***Personal recovery.*** The Questionnaire about the Process of Recovery was applied in its 15-item version (QPR; Neil et al., 2009) to assess the construct personal recovery, covering all five key-aspects of the CHIME-framework (Leamy et al., 2011). The items are scored on a 5-point Likert scale, ranging from 0 (’disagree strongly’) to 4 (’agree strongly’), with higher scores being an indicator for better personal recovery. Psychometric evaluations (Williams et al., 2015; Law, Neil, Dunn, & Morrison, 2014) have found the 15-item version of the QPR to have a high internal consistency (α = .89 and α = .93, respectively). Since it was a Dutch sample, Kraiss et al. (2019a) translated the 15-item QPR original English version into Dutch. The method of forward and backward translation was applied for that purpose. The Dutch version was validated in a Dutch sample with people with BD (Kraiss et al., 2019b). Cronbach’s α was .93 in this study.

***Well-being.*** The three-dimensional construct of well-being was assessed with the Mental Health Continuum - Short Form (MHC-SF; Keyes, 2002; Lamers et al., 2011). This self-report questionnaire comprises 14 items for the assessment of: (a) emotional (hedonic) well-being (three items), (b) psychological well-being (six items), and (c) social well-being (five items). The items are scored on a 6-point Likert scale, where participants had to rate the frequency of experiences that indicate positive mental health during the past month from ’never’ (0) to ’every day’ (5). The total score, as a sum of the three subscales, is an indicator for general well-being. Higher scores indicate greater well-being. Low scores imply less well-being and low mental health.

In order to accommodate the sample, the Dutch version of the MHC-SF was applied. In a psychometric evaluation of Lamers et al. (2011), the total score of this version has been

found to be highly reliable over time (α = .89). Cronbach's α in the current study was .91.

**Predictors.**

***Sociodemographic predictors.*** Prior to the questionnaires, participants were asked to provide general demographic information. Next to their gender ('male'/'female'), age and work status ('unable to work'/'other'), participants were asked to specify their highest educational level (ranging from 'no completed education' to 'scientific education (university)').

***Clinical predictors.*** Participants were asked to specify general information about their type of diagnosis ('BDI'/'BDII'), whether they were in treatment for their BD ('yes'/'no') and if so, how long (ranging from '1 month' to 'more than 12 months'), whether they were prescribed any medication for their BD ('yes'/'no') and whether they had any adaptations in their medication within the past six months ('yes'/'no'). Furthermore, participants were asked about their experience of any (hypo)manic or depressive episodes within the past six months ('yes'/'no'), and whether they were admitted to psychiatric hospitals due to their BD within the past 12 months ('yes'/'no').

***Psychological predictors.***

*Responses to positive affect.* The Responses to Positive Affect questionnaire (RPA; Feldman, Joormann, & Johnson, 2008) measures the respondent's cognitive reaction to positive affective states. The self-report questionnaire comprises 17 items that are scored on a 4-point Likert scale, ranging from 1 (almost never) to 4 (almost always). Higher scores on the subscale dampening indicate a higher tendency of repressing positive emotions, while higher scores on the other two subscales indicate more emotion-focused positive rumination and more self-focused positive rumination, respectively. In this study the Dutch version of the RPA was applied. With its three subscales, the RPA demonstrated good internal consistency for the subscales self-focused positive rumination and dampening (α = .80, respectively) and

adequate reliability for emotion-focused positive rumination (α = .72; Raes, Daems, Feldman, Johnson, & VanGucht, 2010). Following the recommendation of Kraiss et al. (2019a), item six of the RPA was excluded within this current research, where Cronbach's α was .80 for dampening and self-focused positive rumination, and .77 for emotion-focused positive rumination.

*Social role participation.* The 12-item short version of the Social Role Participation Questionnaire (S-SRPQ; Oude Voshaar et al., 2016) assesses the influence of mental health on the extent of participation on six social roles (e.g. employment or intimate relationship) with regard to (a) satisfaction with the role and (b) the experience of psychological difficulty. Respondents were asked to indicate their satisfaction with the roles in relation to these two dimensions on a 5-point Likert scale (from 0 = 'not satisfied at all'/'no difficulties at all' to 4 = 'very much satisfied'/'not possible'). Higher scores imply a higher satisfaction (for dimension a) and more experienced difficulties with the social role (for dimension b). Both subscales revealed high reliability (α = .86) in the initial study (Oude Voshaar et al., 2016). Concurrent with these findings, Cronbach's α in this study was .75 for satisfaction with the role and .82 for experience of psychological difficulty.

**Statistical Analysis**

In order to find relevant variables associated with the patients personal recovery and well-being, simple univariate regression analyses and two block-wise multiple linear regression analyses were applied using the software SPSS (IBM products, version 25).

Prior to the execution of the following analyses, the total sample ($N$ = 119) was split into a testing ($N$ = 99) and a validation ($N$ = 20) sample. While the testing sample was used for the main analyses, the validation sample was only used after the multiple regression analyses to execute cross-validations.

Potential predictors had to pass the following preselection criteria in order to be considered for inclusion into the multiple regression analyses. First, the distribution of the values of each potential predictor was observed. Predictors with extremely skewed distributions (> 80% in one response category) were excluded.

Second, there had to be a bivariate linear relation between predictor and criterion. To prove this, a simple univariate regression analysis between every predictor and criterion was computed. For that purpose, categorical variables were dummy coded, before the simple regressions were computed. Resulting p-values below .2 were regarded as sufficient for inclusion into further analyses. Additionally, the single predictor-criterion scatterplots were visually inspected for linearity, which was regarded as necessary in order to be considered for inclusion into the block-wise multiple linear regression analyses.

Intercorrelations between potential correlates were examined to avoid multicollinearity in the multiple regression models. In case of $r > .7$ between two potential predictors, the predictor that showed a weaker correlation with personal recovery (QPR) and well-being (MHC-SF), respectively, was excluded from multiple regression analyses.

Potential predictors that passed the preselection were included into separate block-wise regression analyses for both well-being and personal recovery. Sociodemographic variables were entered into the first block, while clinical variables were placed in the second block. Psychological variables were entered into the third and last block.

Before interpreting the results of the analyses, a closer look was taken at relevant statistical assumptions for multiple regression. In order to control for outliers, Cook-distances for every value had to be under 1 (Cook & Weisberg, 1982). To check for multicollinearity, VIF-Values of individual predictors had to stay below 5 (Urban & Mayerl, 2006). For both block-wise regression analyses, linearity and homoscedasticity as well as normal distribution of the residuals had the be proven. Therefore, a scatterplot with the predicted values and the standardized studentized residuals was created. In case of linearity and homoscedasticity, the

points in the scatterplot had to be equally distributed among a horizontal line. In a final step, the Kolmogorov–Smirnov test (K-S test) was applied to test for a normal distribution of the residuals. Non-significant values are an indicator of such normal distribution of the residuals. To test the accuracy of the regression model, a cross-validation was applied in the subsample of 20 participants. For that purpose, unstandardized *b*-coefficients of the multiple regression analyses from the main sample were used to compute predicted values of MHC-SF and QPR in the validation sample, respectively. Next, a simple linear regression between the resulting predicted values and the actual values of the validation sample was computed. A strong association of $\beta > .6$ was considered indicative of a high model-accuracy for the multiple regression models.

## Results

### Description of the sample

Due to the splitting of the sample for the cross-validation, 99 participants from the original sample remained for the main analyses. Due to missing data in predictor values, the data of 33 participants was additionally excluded, while 66 participants remained in the analyzed sample. Descriptive information about this sample can be found in table 1.

The mean age of the remaining 66 participants was 51.5 years, with a standard deviation of 10.7 years and a range from 23 to 77 years of age. 78.8% ($n = 52$) of participants were female. Regarding the clinical backgrounds, 48.3% ($n = 29$) reported to be diagnosed with BDI and 51.7% ($n = 31$) were diagnosed with BDII.

Due to extremely skewed distributions (> 80% responses in one response category), the variables currently in treatment, currently taking medication and admission to psychiatric hospital past 6 months were excluded from further analyses.

Table 1

*Sample characteristics (N = 66)*

| Variable | Sub-categories | *n* | % |
|---|---|---|---|
| Gender | Male | 14 | 21.2 |
| | Female | 52 | 78.8 |
| Education | Low | 11 | 16.7 |
| | Moderate | 21 | 31.8 |
| | High | 34 | 51.5 |
| Work ability | Unable to work | 28 | 42.4 |
| | Paid work/retired/other | 38 | 56.6 |
| Diagnosis | BDI | 29 | 43.9 |
| | BDII | 31 | 47.0 |
| | Unknown | 6 | 9.1 |
| Duration of treatment | 1 month | 11 | 16.7 |
| | 2-3 months | 33 | 50.0 |
| | 4-6 months | 12 | 18.2 |
| | 7-12 months | 4 | 6.1 |
| | >12 months | 6 | 9.1 |
| Currently in psychological/ psychiatric treatment * | Yes | 66 | 100 |
| | No | 0 | 0 |
| Currently taking medication* | Yes | 66 | 100 |
| | No | 0 | 0 |
| Adaptation of medication past 6 months | Yes | 36 | 54.5 |
| | No | 30 | 45.5 |
| Six months relapse | Yes | 38 | 57.6 |
| | No | 28 | 42.4 |
| Admission to psychiatric hospital past 6 months * | Yes | 4 | 6.1 |
| | No | 62 | 93.9 |

*Note.* * marks variables that were excluded due to extremely skewed distributions (> 80% responses in one response category)

**Simple univariate regression analyses for personal recovery**

In the following, the results of the simple regression analyses for each predictor and the criterion personal recovery will be described (see table 2). Furthermore, it will be reported whether the individual scatterplots visually indicated linearity.

**Sociodemographic variables.** The variables age (β = -.313, $p < .05$) and work ability (β = -.271, $p < .05$) were found to be significantly correlated with personal recovery. The dummy-coded variables $\text{education}_{\text{low}}$ (β = -.176, $p = .122$) and $\text{education}_{\text{moderate}}$ (β = -.162, $p = .155$) also showed a sufficient level of significance ($p < .2$) to be included in the multiple regression analyses. Gender was excluded from further analyses, due to a level of significance above the cut-off score (β = .11, $p = .315$). The visually inspected scatterplots of the three remaining variables did not violate linearity. Therefore, age, work ability and education were considered for inclusion into the first block of the multiple regression analysis for personal recovery as the criterion.

**Clinical variables.** The simple regression showed a significant relationship between personal recovery and the clinical variables duration of treatment (β = -.337, $p < .05$) and relapses into mood episodes within the past six months (β = -.307, $p < .05$). The association with any medication adaptations within the past six months was also sufficiently high (β = -.175, $p < .109$), while the type of diagnosis was excluded from the following multiple regression analysis (β = .123, $p = .295$). Again, the scatterplots of the three remaining variables visually did not violate linearity and were therefore considered for inclusion into the second block of the block-wise multiple regression analysis.

**Psychological variables.** All subscales of the RPA (self-focused positive rumination (β = .336, $p < .05$); emotion-focused positive rumination (β = .397, $p < .001$); dampening (β = -.267, $p < .05$)) and the S-SRPQ (satisfaction with the role (β = .593, $p < .001$); experience of psychological difficulty (β = -.491, $p < .001$)) were significantly correlated with personal recovery. Further, none of the associated scatterplots visually violated linearity. Therefore, the five variables were considered for inclusion into the third block of the block-wise multiple regression analysis.

Table 2

*Results of the simple linear regressions between sociodemographic, clinical and psychological variables and the criterions personal recovery (QPR) and well-being (MHC-SF)*

| | | QPR | | MHC-SF | |
|---|---|---|---|---|---|
| Category | | F | *p* | F | *p* |
| 1 | Gender | 1.002 | .315 | 3.198 | .077* |
| | Age | 9.028 | .004* | 3.821 | .054* |
| | Education | 1.753 | .18* | 2.731 | .071* |
| | Work ability | 6.595 | .012* | 2.964 | .089* |
| 2 | Treatment frequency | 8.458 | .005* | 15.101 | .000* |
| | Diagnosis | 1.112 | .295 | 0.441 | .509 |
| | Six months relapse | 8.626 | .004* | 3.048 | .085* |
| | Medication adaptation past six months | 2.631 | .109* | 1.958 | .165* |
| 3 | RPA self-focus | 10.565 | .002* | 4.134 | .045* |
| | RPA emotion-focus | 15.505 | .000* | 14.295 | <.001* |
| | RPA dampening | 6.355 | .014* | 1.441 | .233 |
| | Social role satisfaction | 43.339 | .000* | 51.367 | <.001* |
| | Social role difficulties | 25.396 | .000* | 11.618 | .001* |

*Note.* *marks variables which were included in multiple regression analyses ($p < .20$).

**Simple univariate regression analyses for well-being**

Again, all analyzed independent variables visually indicated linearity through their scatterplots. For well-being, results of the simple regression analysis showed many similarities to the earlier described results for personal recovery. Therefore, only marked differences to those results will be described for well-being. More detailed results of the simple regression analysis can be found in table 2.

**Sociodemographic variables.** Next to age ($\beta = -.21$, $p = .054$), $education_{low}$ ($\beta = -.146$, $p = .195$), $education_{moderate}$ ($\beta = -.249$, $p < .05$) and work ability ($\beta = -.186$, $p = .089$), the level of significance of the positive association with female gender was sufficiently low for inclusion into subsequent analyses ($\beta = .193$, $p = .077$).

**Clinical variables.** Similar to personal recovery, relapses into mood episodes within the past six months (β = -.188, $p$ = .085), duration of treatment (β = -.432, $p$ < .001) and medication adaptations within the past six months (β = -.152, $p$ = .165) were included into further analyses, while the type of diagnosis was excluded (β = .077, $p$ = .509).

**Psychological variables.** The RPA subscale dampening was excluded due to an insufficiently low relationship with well-being (β = -.131, $p$ = .233). Therefore, only the RPA subscales self-focused positive rumination (β = .218, $p$ < .05) and emotion-focused positive rumination (β = .383, $p$ < .001) and the SPRQ subscales satisfaction with the role (β = .625, $p$ < .001) and experience of psychological difficulty (β = -.356, $p$ < .001) were considered for inclusion into the third block of the block-wise multiple regression analysis.

## Intercorrelations between potential predictors

The full correlation-matrices, including intercorrelations among all variables, can be found in table A1 for the criterion personal recovery and table A2 for well-being. The two SPRQ subscales concerning satisfaction with the role and experience of psychological difficulty were found to be correlated higher than the earlier set cut-off score of $r$ > .7 ($r$ = -.762). As the associations between satisfaction with the role and both criterions was higher than between experience of psychological difficulty and the criterions (see table 2, table A1 and table A2), the latter subscale of the SPRQ was excluded from multiple regression analyses.

## Block-wise multiple regression analyses

**Personal recovery.** A block-wise multiple regression was computed to predict personal recovery in individuals with BD, based on the sociodemographic, clinical and psychological variables.

The resulting model met all assumptions. Cook-distanced stayed below the cut-off score of 1 and VIF-values were found to be below the cut-off score of 5 for all analyzed independent variables (see table 4). The scatterplot with the predicted values and the standardized studentized residuals visually indicated linearity (as it did not violate it) and homoscedasticity. Results of the Kolmogorov–Smirnov test were non-significant ($p = .2$), which implies a normal distribution of the residuals.

The multiple correlation was significant for all three blocks (see table 3). In the first step, a significant regression equation was found for the sociodemographic variables ($F_1(4,61) = 6.641$, $p < .01$, $R = .514$), which accounted for 26.4% of variance in personal recovery. The second step, containing the clinical variable frequency of treatment, also contributed significantly to the regression model ($F_2(7,58) = 6.289$, $p < .001$, $R = .667$). It showed a significant increase in $R^2$ of 18.1% ($F_{\Delta R}^2(3,58) = 6.289$, $p < .001$), resulting in a total of 44.5%. The last model, including the subscales of RPA and S-SRPQ, also showed a significant contribution to the regression model ($F_3(11,54) = 9.350$, $p < .001$, $R = .81$), as well as a significant change in $R^2$ of 21.1% ($F_{\Delta R}^2(4,54) = 8.266$, $p < .001$). Overall, the regression model was able to account for 65.6% of the variance in personal recovery.

Table 4 shows the resulting regression coefficients. Looking at the full model, shorter duration of treatment ($\beta = -.221$, $p < .05$) and higher SRPQ satisfaction with role ($\beta = .411$, $p < .001$) remained significant correlates of personal recovery. Social role satisfaction was the strongest correlate of personal recovery. Although statistically no longer significant in the full model, younger age ($\beta = -.162$, $p = .077$) and higher RPA emotion-focus ($\beta = .195$, $p = .081$) showed comparably high correlations with personal recovery.

The cross-validation revealed a high model-accuracy, since the correlation between the predicted and the empirical values for personal recovery in the validation sample was significant and strong ($\beta = .695$, $p < .05$).

Table 3

*Model summary for personal recovery (QPR)*

| Block | R | $R^2$ | $R^2$ adjusted | $\Delta R^2$ | $\Delta F$ | df1 | df2 | *p*-value $\Delta F$ |
|---|---|---|---|---|---|---|---|---|
| Sociodemographic | .514 | .264 | .216 | .264 | 5.480 | 4 | 61 | .001 |
| Clinical | .667 | .445 | .378 | .181 | 6.289 | 3 | 58 | .001 |
| Psychological | .810 | .656 | .586 | .211 | 8.266 | 4 | 54 | <.001 |

Table 4

*Prediction of personal recovery (QPR) in block-wise multiple regression (N = 66)*

| | | Not standardized coefficient | | Standardized coefficient | | | |
|---|---|---|---|---|---|---|---|
| Model | | *b* | SE | β | *t* | *p* | VIF |
| 1 | Age | -0.265 | 0.120 | -.250 | -2.207 | .031 | 1.060 |
| | Education low | -7.522 | 3.569 | -.249 | -2.107 | .039 | 1.156 |
| | Education moderate | -5.331 | 2.792 | -.220 | -1.910 | .061 | 1.105 |
| | Work ability | -7.023 | 2.571 | -.308 | -2.731 | .008 | 1.055 |
| 2 | Age | -0.289 | 0.111 | -.272 | -2.608 | .012 | 1.140 |
| | Education low | -8.725 | 3.203 | -.289 | -2.724 | .009 | 1.173 |
| | Education moderate | -4.086 | 2.518 | -.169 | -1.623 | .110 | 1.132 |
| | Work ability | -8.208 | 2.545 | -.360 | -3.225 | .002 | 1.303 |
| | Duration of treatment | -3.468 | 1.047 | -.343 | -3.313 | .002 | 1.121 |
| | Six months relapse | -1.686 | 2.399 | -.074 | -0.703 | .485 | 1.157 |
| | Medication adaptation | -4.179 | 2.470 | -.185 | -1.692 | .096 | 1.246 |
| 3 | Age | -0.172 | 0.095 | -.162 | -1.804 | .077 | 1.270 |
| | Education low | -4.097 | 2.762 | -.136 | -1.483 | .144 | 1.310 |
| | Education moderate | -0.466 | 2.217 | -.019 | -0.210 | .834 | 1.318 |
| | Work ability | -3.805 | 2.510 | -.167 | -1.516 | .135 | 1.902 |
| | Duration of treatment | -2.237 | 0.884 | -.221 | -2.530 | .014 | 1.200 |
| | Six months relapse | 0.692 | 2.119 | .030 | 0.327 | .745 | 1.355 |
| | Medication adaptation | -1.594 | 2.113 | -.070 | -0.754 | .454 | 1.368 |
| | RPA self-focus | 0.560 | 0.469 | .129 | 1.194 | .238 | 1.827 |
| | RPA emotion-focus | 0.712 | 0.400 | .195 | 1.778 | .081 | 1.887 |
| | RPA dampening | -0.366 | 0.270 | -.121 | -1.356 | .181 | 1.256 |
| | SRPQ satisfaction with role | 0.940 | 0.240 | .411 | 3.918 | <.001 | 1.727 |

**Well-being.** A second block-wise multiple regression was computed to predict well-being in individuals with BD, based on the sociodemographic, clinical and psychological variables.

Again, the regression model met all assumptions. Cook-distances, as well as VIF-values (see table 6) were found to be below their respective cut-off scores for all analyzed independent variables. Furthermore, the scatterplot with the predicted values and the standardized studentized residuals again indicated linearity (as it did not violate it) and homoscedasticity. As earlier described, results of the Kolmogorov–Smirnov test were non-significant ($p = .2$), which implies a normal distribution of the residuals.

In the first step of the block-wise regression analysis, the regression equation was significant for the sociodemographic variables ($F_1(5,60) = 2.993$, $p < .05$, $R = .447$), which accounted for 20% of explained variance in well-being (see table 5). The second block, containing the clinical variables, also contributed significantly to the regression model ($F_2(8,57) = 5.371$, $p < .001$, $R = .656$). The second block showed a significant increase in $R^2$ of 23% ($F(3,57) = 7.670$, $p < .001$), resulting in a total of 43% explained variance. The last block, including the subscales of the RPA and the S-SRPQ, also showed a significant contribution to the regression model ($F_3(11,54) = 8.817$, $p < .001$, $R = .801$), as well as a significant change in $R^2$ of 21.3% ($F(3,54) = 10.696$, $p < .001$). Overall, the regression model was able to account for 64.2% of the variance in well-being.

Table 5

*Model summary for well-being (MHC-SF)*

| Block | R | $R^2$ | $R^2$ adjusted | Changes in $R^2$ | Changes in F | df1 | df2 | *p*-value ΔF |
|---|---|---|---|---|---|---|---|---|
| Sociodemographic | .447 | .200 | .133 | .200 | 2.993 | 5 | 60 | .018 |
| Clinical | .656 | .430 | .350 | .230 | 7.670 | 3 | 57 | <.001 |
| Psychological | .801 | .642 | .569 | .213 | 10.696 | 3 | 54 | <.001 |

Table 6
*Prediction of well-being (MHC-SF) in block-wise multiple regression (N = 66)*

| Model | | Not standardized coefficient | | Standardized coefficient | | | |
|---|---|---|---|---|---|---|---|
| | | *b* | SE | β | *t* | *p* | VIF |
| 1 | Age | -0.130 | 0.166 | -0.093 | -0.783 | .437 | 1.062 |
| | Education low | -7.891 | 4.954 | -0.199 | -1.593 | .116 | 1.167 |
| | Education moderate | -7.711 | 3.917 | -0.243 | -1.968 | .054 | 1.139 |
| | Gender | 8.098 | 4.307 | 0.224 | 1.880 | .065 | 1.061 |
| | Work ability | -7.444 | 3.572 | -0.249 | -2.084 | .041 | 1.067 |
| 2 | Age | -0.174 | 0.149 | -0.125 | -1.163 | .250 | 1.149 |
| | Education low | -9.590 | 4.335 | -0.241 | -2.212 | .031 | 1.191 |
| | Education moderate | -5.558 | 3.427 | -0.175 | -1.622 | .110 | 1.163 |
| | Gender | 9.001 | 3.849 | 0.249 | 2.338 | .023 | 1.130 |
| | Work ability | -9.717 | 3.427 | -0.324 | -2.835 | .006 | 1.310 |
| | Duration of treatment | -5.321 | 1.408 | -0.401 | -3.778 | <.001 | 1.124 |
| | Six months relapse | -0.935 | 3.307 | -0.031 | -0.283 | .778 | 1.219 |
| | Medication adaptation | -6.491 | 3.324 | -0.218 | -1.953 | .056 | 1.250 |
| 3 | Age | -0.056 | 0.125 | -0.040 | -0.447 | .657 | 1.214 |
| | Education low | -3.781 | 3.693 | -0.095 | -1.024 | .310 | 1.305 |
| | Education moderate | -0.514 | 2.971 | -0.016 | -0.173 | .863 | 1.320 |
| | Gender | 8.603 | 3.213 | 0.238 | 2.677 | .010 | 1.189 |
| | Work ability | -2.621 | 3.308 | -0.088 | -0.792 | .432 | 1.842 |
| | Duration of treatment | -3.844 | 1.186 | -0.289 | -3.240 | .002 | 1.204 |
| | Six months relapse | 1.616 | 2.795 | 0.054 | 0.578 | .566 | 1.315 |
| | Medication adaptation | -2.623 | 2.825 | -0.088 | -0.928 | .357 | 1.364 |
| | RPA self-focus | 0.410 | 0.637 | 0.072 | 0.643 | .523 | 1.881 |
| | RPA emotion-focus | 1.027 | 0.540 | 0.214 | 1.900 | .063 | 1.916 |
| | Satisfaction with role | 1.428 | 0.322 | 0.475 | 4.436 | <.001 | 1.732 |

Table 6 shows the resulting regression coefficients. Looking at the full model, shorter duration of treatment (β = -.289, $p < .05$), female gender (β = .238, $p < .05$) and higher satisfaction with role (β = .475, $p < .001$) remained significant correlates of personal recovery in the third block. Again, social role satisfaction showed the strongest association with the criterion. Although the association with emotion-focused positive rumination (β = .214, $p = .063$) was statistically not significant, it did show a tendency to predict well-being.

The cross-validation revealed an adequate model-accuracy, as the correlation between the predicted and the empirical values for well-being in the validation sample was significant and moderately high ($\beta = .567$, $p < .05$).

## Discussion

The aim of this study was to explore predictors of personal recovery in individuals with BD. The existing gap of knowledge about factors associated with personal recovery in BD was sought to be reduced, in order to inform effective and evidence-based therapy. For that purpose, associations between the participants' self-reported degree of personal recovery and their sociodemographic, clinical and certain psychological characteristics were investigated. The same potential predictors were examined for their relationship with the closely related concept of well-being. A closer look was taken at the overlap or difference between the concepts of personal recovery and well-being.

While no sociodemographic characteristic showed an independent correlation with personal recovery, the clinical characteristic shorter duration of treatment for BD was found to be associated with personal recovery. Higher social role satisfaction was found to be the strongest indicator for personal recovery. Similar to personal recovery, shorter duration of treatment and higher social role satisfaction were also related to higher overall well-being. Apart from that, gender was found to be uniquely associated with well-being, while female gender was associated with higher well-being.

The finding that a shorter duration of treatment for BD was associated with better personal recovery and higher well-being can be interpreted in different ways. One possible explanation is that patients who generally experience more personal recovery and well-being, regardless of the severity of clinical symptoms, might require less therapy. This might be especially true during euthymic episodes, when no urgent treatment is required. Such an

interpretation is supported by research suggesting that mental health, as in well-being and personal recovery, can buffer against mental illness, while the absence of well-being is a risk factor for mental illness (Lamers et al., 2015; Keyes et al., 2010; Trompetter, deKleine, & Bohlmeijer, 2017). This theory is further in accordance with the basic assumption that personal recovery and well-being can occur in the presence of clinical symptoms and moreover, can even help to cope with its negative consequences (Markowitz, 2001, Seligman, 2002; Song & Hsu, 2011).

Another conceivable possibility for the independent association with shorter duration of treatment can be derived from the patients' motivation and hope regarding therapy. As BD is a chronic disorder, the initial hope regarding therapy might decrease over the course of time, as patients might realize the persistence of the disorder's symptoms and their negative consequences. Feelings of frustration or hopelessness might hinder the experience of well-being and personal recovery, which among other things is itself characterized by feelings of hope, optimism and empowerment (Anthony, 1993; Leamy et al., 2011; Murray et al., 2017; Schrank & Slade, 2007). This interpretation of the negative association between duration of treatment, well-being and personal recovery can be seen as a further substantiation of earlier findings that current treatment for BD fails to adequately address and promote personal recovery and well-being as the preferable aim of therapy (Fajutrao et al., 2009; Oud et al., 2016; Salcedo et al., 2016; Slade, 2010). This again illustrates the need for change in therapy for BD, towards an increased attention to the patients' needs, e.g. by promoting the components of the CHIME framework (Leamy et al., 2011).

However, all these interpretations about the potential role that duration of treatment plays in BD are speculative. Additional information about the participants' treatment, such as the type of treatment, or whether it is applied during mood episodes or euthymic phases is needed in order to draw more evidence-based conclusions from the data.

To explain the positive association between personal recovery and social role satisfaction, the definition of personal recovery can again be taken into consideration. According to research by Schrank and Slade (2007), Whitley and Drake (2010) or Leamy et al. (2011), social connectedness is one main component of recovery. It points out the importance of social interaction in the process of recovery, and involves "establishing and maintaining relationships, assuming social roles and having friends" (Schrank & Slade, 2007, p. 322). In accordance with that, next to emotional and psychological well-being, social well-being is one key aspect of overall well-being (Keyes, 2002; WHO, 2004), as it was assessed in this study. It involves aspects such as social coherence, acceptance, integration and contribution (Keyes, 2002). The findings of this study substantiate the relevance of social functioning in the form of social role participation and one's satisfaction with this participation for personal recovery and well-being, as it was suggested by researchers and health care users. Therefore, the promotion of social participation and social functioning in general might play an important role in the treatment of BD.

However, given the fact that social functioning in general was recognized as being a part of personal recovery and well-being, it cannot be ruled out that the observed association arises merely from the fact that the assessed constructs of social role participation, personal recovery and well-being are similar through shared components. Therefore, it is questionable whether social role satisfaction is really a predictor of personal recovery and well-being, or rather a part of it.

The close similarities between the correlates of personal recovery and well-being support the suspected large overlap between the two concepts. This is in accordance with findings of Kraiss et al. (2019b), who discovered a strong correlation between personal recovery and well-being. Results of the current study further support these findings, as the same correlates were identified for personal recovery and well-being (except for gender). Although they originally stem from two separate movements, key aspects, such as a satisfying

social role participation seem to be similarly relevant for both concepts. In addition to that, a shorter duration of treatment for BD was positively associated with both concepts.

However, these commonalities should not be mistaken for equality, as there were still some aspects differing between the correlates of personal recovery and well-being. One main difference is the relevance of gender, which was found to be uniquely associated with well-being, but not with personal recovery. One possible interpretation for the finding that women with BD seem to experience more well-being than men with BD, is the assumption that women in general experience higher levels of well-being. However, results on gender differences in well-being are mixed (Batz & Tay, 2018). While some studies have found women to generally score higher on key components such as life satisfaction (Blanchflower & Oswald, 2004; Tay, Ng, Kuykendall, & Diener, 2014), and happiness (Wood, Rhodes, & Whelan, 1989), other studies have found men to experience higher well-being (Haring, Stock, & Okun, 1984; Pinquart & Sörensen, 2001).

To date there has been no further evidence that women with BD experience more well-being than men with BD (Kessing, Hansen, & Bech, 2006). As this issue has not been subject of much research, it is conceivable that existing gender differences in BD simply have not been discovered up until now. However, given the uneven distribution of gender in the sample of this study (78.8% female, 21.2% male), a coincidental finding as a result of this sampling error cannot be ruled out. This again points out the importance of replication of this study in order to substantiate the findings and draw tangible conclusions.

The fact that the findings regarding gender differed for well-being and personal recovery might also be explainable by the choice of words in the respective questionnaires (MHC-SF; Keyes, 2002; QPR; Neil et al., 2009). While the QPR uses a rather neutral language ('I feel better...'; '... positive relationships...'; '... my life has a purpose'), the MHC-SF phrases similar contents of items with more emotionally charged words ('... happy'; '... warm and trusting relationships...'; '... life has a sense of direction and meaning...'). Several studies

(Bremner et al., 2001; Hofer et al., 2007; Lithari et al., 2010) have suggested gender differences in the processing of emotional stimuli, such as emotional words, with women generally showing stronger brain activation. Therefore, the observed gender difference for well-being and the fact that such difference was not found for personal recovery could be interpreted as a result of female participants reacting stronger to the emotionally charged language of the MHC-SF. In contrast, the rather neutral use of language in the QPR might have not evoked such gender differences.

Another difference between personal recovery and well-being was found in the simple associations between each of the two concepts and dampening, which is one aspect of the participants' response to positive affect (Feldman et al., 2008). While dampening was not correlated with well-being, it did show a negative association with personal recovery. Although this association did not remain in the full multiple regression model, it is conceivable that other variables in the model (e.g. the other RPA subscales) might have overshadowed the predictive value of dampening. Therefore, the observed difference between personal recovery and well-being regarding their association with dampening remains worth mentioning.

This finding regarding personal recovery is supported by Kraiss et al. (2019a), who also discovered dampening of positive affect to be negatively associated with personal recovery. The most evident interpretation of this relationship is that dampening may hinder people with BD from experiencing personal recovery. Such an interpretation is supported by Edge et al. (2013), who suggested that people with BD avoid rewarding activities and suppress positive emotions in order to prevent manic episodes, even though this was related to lower QoL. According to Mansell (2016), the fear that positive feelings could trigger manic episodes is one main reason for people with BD to dampen positive affective states.

Coming back to well-being, findings about its association with dampening are mixed (Bryant, 1989; Gross & John, 2003). Quoidbach et al. (2010), for example, found that certain

strategies of dampening, such as negative anticipation or fault-finding are related to poorer life-satisfaction. Other strategies, such as distraction or suppression of positive affect, however, did not show such a correlation. Findings of the current study support the viewpoint that there is no such association between dampening and well-being. Since the results are inconsistent, further research is needed to explore the role of dampening and its impact on well-being, specifically in people with BD. Should such a non-existing relationship, as found in this study, be substantiated, it can then be investigated which specific characteristics of both constructs (well-being and personal recovery) cause this difference.

Despite the importance of these new findings for comprehending and promoting personal recovery in BD, the study also has some limitations. Due to the exclusion of participants with any missing data within the regression analyses, as well as the splitting of the sample for validation purposes, the already relatively small sample was further downsized. Miller and Kunce (1973) proposed a rule of thumb, according to which a subject to predictor ratio of 10 to 1 is necessary to produce generalizable findings. Given the eleven predictor variables of this study (with education being dummy-coded into $education_{low}$ and $education_{moderate}$), this rule of thumb would imply a minimum sample size of 110. With an actual sample size of 66 participants, the robustness of this study's findings remains questionable. Furthermore, it is conceivable that further relevant correlates, such as age for personal recovery, were underpowered due to the small sample size.

A second major issue that demands awareness is the cross-sectional nature of the study, which precludes any conclusion about causality or directionality on basis of the collected data. In order to enable interpretations about causality between the predictor variables and personal recovery and well-being, a longitudinal study would be necessary. This would be of particular interest, as it would allow researchers to capture personal recovery and well-being as an ongoing process, as it was described by Anthony (1993), instead of fixed states.

While interpreting the findings of this study, it is necessary to take into account that the resulting regression model has no claim of completeness. Apart from the eleven analyzed variables, other potential correlates of personal recovery and well-being were not assessed in this study, such as different types of therapy or comorbidities.

Another issue concerns the participants' diagnosis of BD, which was not validated through an additional screening. Since all participants were recruited from members of a Dutch patient association for bipolar patients (VMDB), the veracity of the reported diagnoses is estimated to be relatively high, but cannot be known for sure. Wrong information regarding the diagnosis of participants might have distorted the findings, as correlates of personal recovery and well-being might differ for people without BD.

Generally speaking, further research in the form of cross-validation in independent samples and subsequent research will be needed in order to substantiate the findings of this study. Most important would be the use of a larger sample size and a more precise assessment of the participants' current type of treatment, in order to overcome some limitations of the current study.

In conclusion, this study has made important contributions to the much-needed research in the field of personal recovery, while taking a broad view on potentially relevant aspects. Similar correlates of personal recovery and well-being support the suspected overlap between the two concepts. A negative association between duration of treatment and the criterions potentially supports the hypothesis that current treatment of BD fails to sufficiently promote personal recovery and well-being. The association of the respondents' satisfaction with social role participation and personal recovery and well-being suggests that social functioning could play an important role in BD. This again supports earlier findings and makes the increased promotion of social functioning in general, and social role participation in particular, a potentially promising component of future therapy.

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# Appendix A

## Correlation-matrices between predictors and the respective criterion

Table A1

*Correlation-matrix between predictors and the criterion personal recovery (QPR)*

| | QPR | Age | Education | Work ability | Duration of treatment | Six months relapse | Medication adaptation | RPA self-focus | RPA emotion-focus | RPA Dampening | SPRQ Social role satisfaction | SPRQ Role difficulty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QPR | 1,000 | -,328* | ,307* | -,348* | -,329* | -,256* | -,151 | ,415** | ,455** | -,288* | ,636** | -,521** |
| Age | - | 1,000 | -,157 | ,166 | -,179 | ,142 | ,072 | -,085 | -,205 | ,253* | -,182 | ,260* |
| Education | - | - | 1,000 | -,012 | ,023 | ,052 | ,016 | ,092 | ,210* | -,210* | ,213* | -,248* |
| Work ability | - | - | - | 1,000 | -,017 | ,229* | -,316* | -,141 | -,007 | -,089 | -,479** | ,466** |
| Duration of treatment | - | - | - | - | 1,000 | ,117 | ,178 | -,194 | -,166 | ,057 | -,194 | ,227* |
| Six months relapse | - | - | - | - | - | 1,000 | ,159 | -,031 | -,131 | ,269* | -,341* | ,235* |
| Medication adaptation | - | - | - | - | - | - | 1,000 | -,080 | -,104 | ,095 | -,113 | ,166 |
| RPA self-focus | - | - | - | - | - | - | - | 1,000 | ,595** | -,176 | ,129 | -,127 |
| RPA emotion-focus | - | - | - | - | - | - | - | - | 1,000 | -,209* | ,186 | -,297* |
| RPA Dampening | - | - | - | - | - | - | - | - | - | 1,000 | -,109 | -,001 |
| SRPQ Social role satisfaction | - | - | - | - | - | - | - | - | - | - | 1,000 | -,762** |
| SRPQ psychological difficulty | - | - | - | - | - | - | - | - | - | - | - | 1,000 |

*Note.* *$p < .05$

** $p < .01$

Table A2

*Correlation matrix between predictors and the criterion well-being (MHC-SF)*

| | MHC-SF | Age | Education | Gender | Work ability | Duration of treatment | Six months relapse | Medication adaptation | RPA self-focus | RPA emotion-focus | SRPQ Social role satisfaction | SRPQ role difficulty |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MHC-SF | 1,000 | -,152 | ,209* | ,247* | -,264* | -,440** | -,153 | -,173 | ,300* | ,409** | ,621** | -,440** |
| Age | - | 1,000 | -,157 | -,016 | ,166 | -,179 | ,142 | ,072 | -,085 | -,205 | -,182 | ,260* |
| Education | - | - | 1,000 | ,057 | -,012 | ,023 | ,052 | ,016 | ,092 | ,210* | ,213* | -,248* |
| Gender | - | - | - | 1,000 | ,078 | -,040 | ,242* | ,040 | -,161 | ,028 | ,004 | -,003 |
| Work ability | - | - | - | - | 1,000 | -,017 | ,229* | -,316* | -,141 | -,007 | -,479** | ,466** |
| Duration of treatment | - | - | - | - | - | 1,000 | ,117 | ,178 | -,194 | -,166 | -,194 | ,227* |
| Six months relapse | - | - | - | - | - | - | 1,000 | ,159 | -,031 | -,131 | -,341* | ,235* |
| Medication adaptation | - | - | - | - | - | - | - | 1,000 | -,080 | -,104 | -,113 | ,166 |
| RPA self-focus | - | - | - | - | - | - | - | - | 1,000 | ,595** | ,129 | -,127 |
| RPA emotion-focus | - | - | - | - | - | - | - | - | - | 1,000 | ,186 | -,297* |
| SRPQ Social role satisfaction | - | - | - | - | - | - | - | - | - | - | 1,000 | -,762** |
| SRPQ psychological difficulty | - | - | - | - | - | - | - | - | - | - | - | 1,000 |

*Note.* *$p < .05$
** $p < .01$