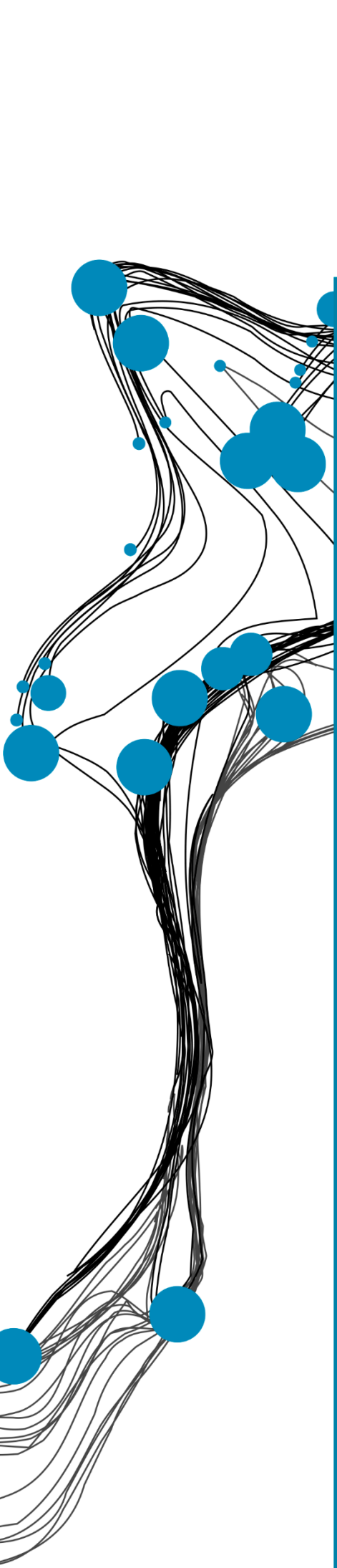

MASTER THESIS

The Influence of Well-Being Levels on Treatment Outcomes in Patients with Personality Pathology Undergoing Inpatient Group Schema Therapy

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Abstract

Background. Treating personality disorders, remains a challenge to mental health care, with a subgroup of patients not responding sufficiently to treatment. Schema therapy is one promising approach to meeting this challenge. The goal of schema therapy is to increase the activation of healthy modes - momentary emotional state or coping responses when a schema has been triggered. To assess whether treatment is successful, not only symptoms and modes need to be assessed, but also well-being, as findings on the two continua model have shown that complaints and well-being are related but located on two distinct continua. Well-being in PD patients is low, which poses a risk of relapse. The three dimensions of well-being (emotional, social, psychological) might be related to (personal) recovery and might have a unique influence on recovery. This present study aims to explore the influence of levels of well-being before treatment on the process of recovery, in a sample of personality disorder patients for which treatment success has already been established. **Method.** 106 patients completed the Brief Symptom Inventory (BSI), Schema Mode Inventory (SMI), and Mental Health Continuum – Short Form (MHC-SF) pre-, intermediate, and post treatment, as well as at 6-month and long-term follow up (2-8 years later). The inpatient group schema therapy was designed to last one year. The data was approached with mixed model repeated measures analyses. **Results.** The results showed that well-being, especially psychological well-being, was strongest connected to the reduction in symptoms over time. For schema modes, higher levels of psychological well-being were found to have an influence on the increases in functional modes over time, but not on the decreases in dysfunctional modes, as opposed to the other dimensions of well-being. Higher levels of emotional and particularly of psychological well-being at baseline were found to influence the increase in well-being over the course of treatment. For all outcome measures the most gradual course of recovery was observable in patients with high(er) levels of well-being at baseline. **Discussion.** These findings showed that those with higher well-being at baseline generally profited most from treatment. They hold the implication that promoting well-being, especially psychological well-being, for those showing low levels of well-being at the start of treatment, might increase treatment success for this group. This includes a lowered risk of relapse after treatment and stronger and more gradual improvements over time. This was found to be particularly true for improvements in symptoms and dysfunctional modes.

Keywords: personality disorders, schema therapy, two continua model, well-being

Contents

Introduction

Treating personality disorders, remains a challenge to mental health care (Fournier et al., 2008). Schema therapy is one promising approach to meeting this challenge (Jacob & Arntz, 2013). Following the recent developments in clinical and positive psychology that have called for an integration of well-being measures into outcome studies, this present study aims to explore the influence of levels of well-being before treatment on the process of recovery during and after schema therapy. This is studied in a sample of personality disorder patients, for which treatment success has already been established (Schaap, Chakhssi, & Westerhof, 2016; Wolterink & Westerhof, 2018). In the following, the thematic and theoretical background for the present study is being presented and discussed.

Treating Personality Disorders

Personality disorders (PD) still belong to the most difficult to treat mental illnesses (Davey, 2014). Evolving in early childhood or adolescence, PDs are characterized by persistent maladaptive ways of thinking and acting that impair the individual's functioning and cause considerable distress (Bender, Morey, & Skodol, 2011). The persistency and severity of symptoms, as well as the high comorbidity with other disorders, present a challenge for treatment (Davey, 2014). However, also a lack of knowledge about effectiveness of treatments and recovery processes in PD patients – with studies predominantly focusing on Borderline Personality Disorder (BPD) – contribute to this challenge (Jacob & Arntz, 2013; Bateman, Gunderson, & Mulder, 2015). A study by Fournier and colleagues (2008) illustrates the problem, by showing that in their study less than half of those with comorbid personality disorder responded to psychotherapeutic treatment, as opposed to 70% of those without comorbid personality disorder. There is thus a subgroup of people with PD who do not respond to initial psychotherapeutic interventions, presenting a need to forward knowledge on treatment and recovery from PD.

Psychotherapeutic treatments have generally shown to be the superior approach for treating PDs, compared to no treatment at all (Gabbard, 2000; Leichsenring & Leibing, 2003), with schema therapy being one of these treatments (Masley, Gillanders, Simpson, & Taylor, 2012; Jacob & Arntz, 2013; Bamelis, Evers, Spinhoven, & Arntz, 2014). To understand how this present study explores the recovery process in PD patients undergoing schema therapy, the basic elements of this treatment approach will be presented, followed by the evaluation of treatment success in the next section.

Schema Therapy. Schema therapy, originally developed by Young and colleagues (2003), combines psychotherapeutic approaches, such as elements form CBT or

psychodynamic psychology, with experiential (affective) and interpersonal techniques, to be more suited for those considered difficult to treat, such as personality disorders.

Central to this model is the concept of schema – a pattern of thought that functions as a framework for experiencing reality and interpreting information, which influences the corresponding response (Brewer & Treyens, 1981). The model of schema therapy assumes that at the core of PDs are schemas that have formed as a result of repeatedly unmet needs during childhood (Young et al., 2003). These involve memories, emotions, cognitions, and bodily sensations, which together determine how the self, others, and the relationship with others are viewed. In adulthood they can be triggered by situations that (unconsciously) remind the individual of the aversive childhood experiences, causing significant distress. Although not fitting the present anymore, these schemas are maintained by three processes. Firstly, the schema directs attention towards information that agrees with it, while ignoring contradicting information, leading to misperceiving situations. Secondly, individuals feel drawn to familiarity, even if the familiar is toxic, leading to unconsciously choosing situations and relationships that trigger and maintain the schema. Thirdly, coping styles that have been adaptive during childhood are still activated when the schema is triggered, even though they are not adaptive anymore. These maladaptive coping styles involve overcompensation (doing the opposite of the schema), avoidance of triggers, and surrendering, that is accepting the schema as true and surrendering to toxic situations (Young et al., 2003).

In treatment, however, it can be more helpful not to look at the trait level (the schemas), but instead to look at the state level, that is the momentary emotional state or coping response that individuals find themselves in when a schema has been triggered (Young et al., 2003). These so-called *schema modes* involve four categories: child modes (vulnerable child, angry child, impulsive/undisciplined child, happy child), dysfunctional coping modes (compliant surrender, the detached protector, the detached self-soother, the self-aggrandizer, and the bully/attack), dysfunctional parent modes (the punitive parent and the demanding parent), and the healthy adult mode (Young et al., 2003, pp. 40-41). This model of schema modes has since found validation (Lobbestael, Van Vreeswijk, & Arntz, 2008; Keulen-de Vos et al., 2017). The goal in schema therapy is to increase the activation of the healthy adult mode, as this mode has the ability to handle the other modes and fight maladaptive schemas (Young et al., 2003). Whether treatment has been successful in PD patients, should therefore become visible by monitoring dysfunctional and functional modes over the course of treatment. Is the treatment indeed successful, the functional modes should visibly increase, while the dysfunctional ones decrease, which is being assessed in this present study.

However, there is more to the evaluation of treatment success, as will be shown in the next section.

Evaluating the Outcome: The Two Continua Model

The field of Positive Psychology has shaped the understanding of mental health as more than the absence of mental illness (Seligman & Csikszentmihalyi, 2014). This has nowadays found general acceptance, as also displayed in the definition of mental health by the World Health Organization (WHO, 2018). Nonetheless, the majority of outcome research has solely focused on the reduction of symptoms (Shapiro & Shapiro, 1982; Duckworth, Steen, & Seligman, 2005; Barth et al., 2016). Keyes two continua model provides further proof that this is insufficient. This model shows that symptoms of mental illness and well-being are, although related, not located on the same continuum (Keyes & Lopez, 2002; Keyes, 2005). Rather, they belong to two distinct continua, allowing for an individual to display various symptoms of mental illness, while also showing signs of high well-being, for instance. Keyes calls this 'incomplete mental illness' – the individual is 'struggling'. The opposite is also possible, with an individual showing little or no symptoms, while also being low on mental well-being. Keyes calls this 'incomplete mental health' – the individual is 'languishing'. High levels of symptoms and low levels of well-being are defined as 'complete mental illness' – 'floundering'; and the opposite with low levels of symptoms and high levels of well-being was called 'complete mental health' – 'flourishing' as the desired state (Keyes & Lopez, 2002, p. 50). This model has found validation by a variety of studies (e.g. Renshaw & Cohen, 2013; Westerhof & Keyes, 2010; Lamers, Westerhof, Glas, & Bohlmeijer, 2015; Iasiello, Agteren, & Cochrane, 2020).

To understand why considering well-being alongside the reduction of psychopathological symptoms is so important, well-being has to be better understood first. *Well-being* in this context is characterized as the subjective perception of feeling well (hedonia) and living well (eudaimonia; Keyes, 2009). An individual who is flourishing, shows high levels of both hedonic and eudaimonic well-being. Hedonic well-being comprises the experience of positive or pleasurable emotions, such as joy, gratitude, hope, or love (*emotional well-being*). Eudaimonic well-being involves both *psychological well-being* and *social well-being*. Psychological well-being is about experiencing high levels of autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff & Keyes, 1995). Social well-being involves the five dimensions of social integration, social contribution, social coherence, social actualization, and social acceptance (Keyes, 1998).

Low levels of well-being have a strong negative impact on individuals. Not only is the risk for physical diseases increased for people with low levels of well-being (Smith et al., 2007), individuals are also more at risk to experience psychological distress, to acquire mental illness in the future, and to experience relapse (Wood & Joseph, 2010; Keyes, Dhingra, & Simoes, 2011).

Well-Being and Personality Disorders

Research on the prevalence of well-being in personality disorders to date is sparce. One study by Stanga, Turrina, Valsecchi, Sacchetti, and Vita (2019) however found low levels in PD patients, which were even below levels of well-being in other serious mental illnesses such as schizophrenia. Since low levels of well-being increase the risk of relapse, these low levels could be especially detrimental for PD patients, considering that relapse for them involves increased self-harming behaviors or suicidal attempts, as most frequently found in BPD (Cailhol et al., 2007; Brown & Chapman, 2007). The need to consider well-being in the process of recovering from PD and to evaluate treatments also based on outcomes in well-being, becomes evident. In fact, this stance is supported and called for by authors exploring the two continua in mental health (Renshaw & Cohen, 2013; Westerhof & Keyes, 2010; Lamers, Westerhof, Glas, & Bohlmeijer, 2015; Iasiello, Agteren, & Cochrane, 2020). Furthermore, it has been found that a subgroup of patients in mental health treatment only improve on either symptoms or well-being (Trompetter et al., 2017). From this finding and the finding that a subgroup of PD patients does not respond well to treatment (Fournier et al., 2008), the hypothesis emerges that both could be connected. The present study, therefore, intends to gather more knowledge on this by focusing on whether levels of well-being might play a role in distinguishing those patients who profit from treatment from those who do not. To get a clearer picture, the possible impact of high or low levels of each of the three dimensions, emotional, social, and psychological well-being, should be considered and understood individually as well.

Emotional Well-Being. Fredrickson's (2004) *broaden-and-build theory* has largely shaped the understanding of emotional well-being. According to this theory, positive emotions (emotional well-being) have the ability to broaden the mind in terms of attention and perception, making room for more flexibility and seeing more possibilities. This is contrary to negative emotions, which narrow attention to the problem at hand. Furthermore, Fredrickson (2004) argues that positive emotions also have the ability to build mental, psychological, physical, and social resources. According to her, more positive emotions lead to more creativity, confidence, and personal growth, which enhance resilience when faced

with aversive life experiences. It was even found that positive emotions could lead to more positive emotions which in turn had broadening and building effects, constituting an upward spiral of positive emotions (Fredrickson & Joiner, 2002; Garland et al., 2010; Stiglbauer, Gnambs, Gamsjäger, & Batinic, 2013).

Connecting this theory to the recovery from personality disorders, the PD maintaining mechanism of maladaptive schemas, which direct attention towards schema-confirming information only, has to be brought back to mind (Young et al., 2003). According to broaden-and-build theory, an increase of positive emotions might enable a broader look at the situation to also apprehend schema-contradicting information, which could help in resolving the schema. Positive emotions might also build resources to cope better with negative emotions during treatment and to more actively take part in treatment. Consequently, treatment outcomes might be improved for those experiencing more positive emotions. In turn, relating to the upward spiral of positive emotions, those experiencing more positive emotions at the start of treatment, might show stronger increases of well-being over time. This provides reason to believe that emotional well-being may play a key role in positively affecting the treatment process and consequently the treatment outcome.

Social Well-Being. The importance of social factors such as social relationships and social support for the recovery from mental illness is widely recognized in the literature (Coyne & Downey, 1991). This was especially found to be true for recovering from severe mental illness such as personality disorders (Schön, Denhov, & Topor, 2009). Although research has not yet focused on social well-being in PD patients, literature on impairments in social functioning of PD patients is extensive (Davey, 2014; Young et al., 2003; Newton-Howes, Tyrer, & Weaver, 2008). In fact, studies investigating patient perspectives on recovery from PD, have found that they named concepts of social well-being, such as positive personal relationships and wider social interaction (Gillard, Turner, & Neffgen, 2015), or connectedness (Kverme, Nativik, Veseth, & Moltu, 2019) as particularly desirable treatment outcomes. These studies investigated the concept of *personal recovery* in PD patients – learning to live a meaningful and satisfying life despite the possible persistence of complaints (Anthony, 1993), as opposed to merely focusing on the reduction of symptoms (clinical recovery), which has long been the main goal in treating mental disorders (Roberts & Boardman, 2013). Considering that personality disorders are thought of as persistent or even chronic impairments in functioning (Davey, 2014), the concept of personal recovery – learning to live well with the disorder – should be considered an important topic. However, only a few studies have investigated personal recovery in PD patients (Shepherd, Sanders,

Doyle, & Shaw, 2015). Investigating the influence of social well-being on recovery might therefore yield information on personal recovery in PD, as an important indication for treatment success. That is firstly, as it seems to be an important factor for patients, and secondly since impairments in social functioning can be used to evaluate severity of PD (Newton-Howes, Tyrer, & Weaver, 2008). Higher levels of social well-being might therefore be related to stronger improvements in personality pathology.

Psychological Well-Being. Personal recovery in PD patients has, furthermore, also been connected to concepts of psychological well-being. Examples are developing a sense of self-identity (Turner, Lovell, & Brooker, 2011), or autonomy in the recovery process (Shepherd et al., 2015) – concepts closely linked to psychological well-being. But this is not the only reason why psychological well-being might have an influence on the recovery from personality pathology. A study by Steger (2012) found that the perception of greater meaning in life – an important component of psychological well-being – was connected to lower levels of psychopathology. This suggests that (at least components of) psychological well-being might be connected to lower levels of symptoms or dysfunctional schema modes, which could imply better treatment outcomes. As low psychological well-being in adulthood has been connected to aversive experiences in childhood (Nurius, Green, Logan-Greene, & Borja, 2015), – a common origin of personality pathology (Young et al., 2003) – psychological well-being can be expected to be low in PD patients. Higher psychological well-being was also found to buffer against daily stresses (Nurius et al., 2015) which might imply that patients with higher levels of psychological well-being are better able to follow the treatment and cope with difficulties along the way.

Aim of this Study

This study aims to explore the influence of well-being and its three dimensions on the recovery process in PD patients undergoing inpatient group schema therapy. In line with the two continua model (Keyes, 2005), this influence is not only assessed on symptoms and schema modes, but also on well-being, measured over the course of the treatment (pre-treatment, during treatment, and after treatment) as well as on two follow-up moments. The findings of this study intend to contribute to a gain in knowledge about (personal) recovery in PD patients, seeking to find new indications to why a subgroup of PD patients does not sufficiently respond to treatment (Fournier et al., 2008). Findings might hold first indications to whether the promotion of well-being in individuals with personality disorder might enhance process and outcome of treatment.

Research Questions

1. How does the level of well-being and its dimensions at baseline influence the change in symptoms over time?
2. How does the level of well-being and its dimensions at baseline influence the change in schema modes over time?
3. How does the level of well-being and its dimensions at baseline influence the change in well-being over time?

Method

The present study examined the treatment outcome of patients treated at De Wieke, now called De Boerhaven, a psychotherapeutic clinic of Mediant's center for personality disorders. In this clinic patients with complex personality disorders are treated. The data collected at this clinic is the same data as used in the study by Wolterink, and Westerhof (2018), which examined changes in schema modes and symptoms over the course of treatment, as well as the relation between modes and symptoms. A preceding study by Schaap and colleagues (2016), in which positive treatment outcomes for the schema therapy at De Wieke were found, also partly used the same data (n = 65). The present study additionally includes data from long-term follow-up measurements, which was not yet available to the two studies mentioned before.

Setting

Patients stayed at the clinic during working days and went home during the weekends. The treatment was designed to last one year, but extensions or earlier terminations of treatment could be arranged. At a time, a total of 27 patients were admitted at the clinic, who were divided into three groups of 9 patients for the group therapy sessions. The treatment involved 75 minutes of group schema therapy twice a week, as well as blocks of art therapy, psychomotor therapy, psychodrama therapy, and pharmacotherapy. Patients spent four therapy blocks per week working on one of five specific modules, related to different components of schema therapy. Furthermore, at the start of the treatment, each patient received eight sessions of individual therapy with their main practitioner. Later on, it was possible to arrange more individual sessions, if they were approved by their main practitioner.

The group therapy sessions were carried out by in total three therapists – two certified clinical psychologists and one clinical psychologist trainee, who was supervised by one of the clinical psychologists. They were all experienced in both cognitive-behavioral therapy (CBT)

and schema therapy (ST). Additionally, the two clinical psychologists had completed a 3-day master class with ST developer Jeffrey Young, and received monthly supervision by a certified ST supervisor.

The group ST was largely based on the group schema therapy for personality disorders as designed by Thunissen and Muste (2002), as an adaptation of Young and colleagues (2003) individual ST model. The phases in group ST are, however, the same as in individual ST. In the first phase patients learn about the model: schemas are explored and identified, and connected to their origin, maladaptive coping styles, and modes, yielding a schema case conceptualization and an agreed-upon treatment plan. In the second phase, the focus is on changing the schemas, using cognitive, experiential, behavioral, and interpersonal techniques. Cognitive techniques involve gathering proof against the schema. Experiential techniques include imagery or dialogues to confront and oppose the schemas on an emotional level. Behavioral techniques comprise behavioral experiments to learn new and more adaptive behaviors and coping styles. Finally, interpersonal strategies mainly involve two techniques: firstly empathic confrontation in which understanding for the patient's schemas is expressed, while directing attention towards distortions and dysfunctionalities, and secondly limited reparenting, that is fulfilling emotional needs that were not met during childhood (Young et al., 2003). From the first phase on, clients worked with the Handbook of Clinical Schema Therapy (Handboek klinische schematherapie by Muste, Weertman, & Claassen, 2009). For a more detailed description of the schema-focused psychotherapy in the De Wieke clinic, the studies by Schaap, Chakhssi, and Westerhof (2016) and by Wolterink and Westerhof (2018) can be consulted.

Design

This naturalistic cohort study used a within-subjects design with five moments of measurement, a pre-treatment, intermediate, post-treatment, 6-month follow-up, and a long-term follow-up measurement.

Participants

In the time frame of this study, 112 participants have been admitted to the De Wieke clinic. Criteria for admission included no acute suicidality, an IQ larger than 80, fluency in the Dutch language to sufficiently benefit from the treatment, and no aggressiveness that could endanger fellow patients. Patients admitted at the clinic had already received treatment before (outpatient/day treatment/in-patient treatment) from which they had not sufficiently benefitted. Out of the 112 admissions, two patients did not consent participation, and four patients were admitted twice whose first admission (drop-out) was counted only. This yielded

a total sample size of 106 participants. Out of these, 79 participants were female (75%) and 27 were male (25%), with an average age of 28 years at admission (σ = 6.88; see Table 1). The average length of stay was 37 weeks (σ = 20.32). Thirty-four participants (32%) terminated their treatment within the first six months of their stay (less than 26 weeks), against the advice of their therapists. These were classified as dropouts, with an average length of stay of 13 weeks (σ = 6.55). Seventy-two participants completed the treatment (68%), with an average length of stay of 49 weeks (σ = 12.99).

The clinical psychologists used the interviews and psychological tests to diagnose the patients. The study by Wolterink, and Westerhof (2018), which used the same set of participants, detailed the diagnoses as follows. 79% of the participants were diagnosed with a personality disorder, with the most common diagnoses being Borderline Personality Disorder (27%), Avoidant Personality Disorder (10%), Dependent Personality Disorder (7%), and Personality Disorder Not Otherwise Specified (73%, see Table 1). The remaining 21% of the participants did show personality problems but did not meet the criteria for a PD diagnosis. Half of them were, however, diagnosed with an identity disorder. Very commonly, participants were also diagnosed with a comorbid disorder. This included mood disorders (59%), anxiety disorders (27%), eating disorders (12%), and substance abuse disorders (11%).

Table 1

Demographics

			Percent
Gender		Male	25%
		Female	75%
Diagnosis	79% Personality Disorder	Borderline PD	27%
		Avoidant PD	10%
		Dependent PD	7%
		PD not otherwise specified (PDNOS)	37%
	21% Personality problems not fulfilling diagnostic criteria	Identity disorder	50%
		-	50%
Comorbid Disorder		Mood disorder	59%
		Anxiety disorder	27%

		Eating disorder	12%
		Substance abuse	11%
Treatment		Yes	68%
Completion		No (Drop-out)	32%

Note. the data displayed is partly adopted from Wolterink, and Westerhof (2018, pp. 30-32)

The 106 participants included in this study all completed the pre-measurement (see Table 2). The intermediate measurement was completed by 78 participants, including 10 dropouts whose measurement at discharge was counted as intermediate measurement. Four participants were also included in this measurement, even though they filled in the measurement after week 33. Out of the 28 participants who had not completed the measurement, 24 had dropped-out without filling in a discharge measurement and 4 did not respond/refused to participate. The post-measurement was filled-in by 60 participants. Thirty-four participants had already dropped-out by then, and 12 participants had not responded/refused to participate. The 6-month follow-up measurement was completed by 65 participants, including 7 participants who had not completed the post-measurement. The 41 participants who did not complete this measurement consisted of 27 dropouts and 14 participants who had not responded/refused to participate. As the data available to this study for the long-term follow-up is part of an ongoing research, only 55 participants have been asked to take part yet. These had all taken part in at least 6 months of treatment. Out of these, 16 participants completed the long-term follow-up measurement. Ten participants completed all five measurements (see Table 2).

Table 2

Responses for dropouts/completers per moment of measurement

Measurements		**Drop-Out**		**Response Total N**
		Yes	**No**	
Pre-measurement	Completed	34	72	106
	Not completed	0	0	
Intermediate measurement	Completed	10	68	78
	Not completed	24	4	
Post-measurement	Completed	0	60	60
	Not Completed	34	12	

6-Month Follow-up	Completed	7	58	65
	Not completed	27	14	
Long-term Follow-up	Completed	0	16	16
	Not completed	35	55	

Materials

For the five measurements done in this research, three Questionnaires were used. To assess the psychological difficulties of the PD patients, the Brief Symptom Inventory (BSI) and the Schema Mode Inventory (SMI) were used, whereas the Mental Health Continuum Short Form (MHC-SF) assessed the positive psychological functioning of the patients. Although the questionnaires are presented in English in the following, this study used the Dutch versions of the tests.

Brief Symptom Inventory. The BSI is a self-report questionnaire that assesses psychological symptoms and distress, as experienced during the last seven days (Drobnajak, 2013). It is a shorter form of the CSL-90 and comprises 53 items (Derogatis & Melisaratos, 1983), asking for how much the patient was distressed by 'Nervousness or shakiness inside' or 'Your feelings being easily hurt' for instance. These items are rated on a 5-point scale ranging from 1) 'not at all' to 5) 'extremely' (Drobnajak, 2013). The items belong to 9 dimensions (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism), which can be individually scored and provide information about the area of psychological problems the patient is suffering from. For the analysis, the mean score was used, calculated by the sum score divided by the number of items. The BSI has been found to have good test-retest reliability and to be internally consistent, as well as to have acceptable convergent and construct validity (Derogatis & Melisaratos, 1983; de Beurs & Zitman, 2006).

Schema Mode Inventory. The SMI is a self-report questionnaire originally developed by Young and colleagues (2007). It is used to measure the manifestation of the functional and dysfunctional schema modes with a total of 124 items. It distinguishes 14 modes, belonging to the categories of the dysfunctional child modes (vulnerable child, angry child, enraged child, impulsive child, undisciplined child), the dysfunctional coping modes (compliant/surrender, detached protector, detached self-soother, self-aggrandizer, bully/attack) , the dysfunctional parent modes (punitive parent, demanding parent), and the functional modes (happy child, healthy adult). Example items are 'I am hard on myself' (parent mode), 'I throw things around when I'm angry' (child mode) or 'When necessary, I complete boring and routine tasks in order to accomplish things I value' (healthy adult mode) (Lobbestael, van Vreeswijk,

Spinhoven, Schouten, & Arntz, 2010). The SMI has shown to have an acceptable internal consistency, an adequate test-retest reliability and a moderate construct validity (Lobbestael et al., 2010). To look at functional and dysfunctional modes separately, the scores on the 104 items assessing the dysfunctional child, coping, and parent modes were summed and divided by their count, to receive the total score of dysfunctional modes. For functional modes, the scores of the remaining 20 items of the happy child and healthy adult modes were summed as well divided by their count to receive the total score of functional modes.

Mental Health Continuum – Short Form. The MHC-SF is a brief self-report questionnaire to assess positive mental health (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011). It comprises 14 items which ask how often during the past month the person felt 'happy' or 'good at managing the responsibilities of your daily life?' for instance. The items are rated on a 6-point scale, ranging from 1) 'Never' to 6) 'Every day'. Next to a sum score of positive mental health, the MHC-SF also yields scores on the three dimensions emotional well-being, social well-being, and psychological well-being. It has shown to possess high internal reliability, modest test-retest reliability, and good convergent and discriminant validity (Lamers et al., 2011).

Procedure

Patients who were admitted to the De Wieke clinic between July 2011 and February 2015 were asked to participate in this research. The patients who agreed to take part, received, the three questionnaires (BSI, SMI, and MHC-SF) about seven weeks before the start of their treatment ($\mu = 7.41$ before the treatment, $\sigma = 6.71$). The questionnaires were administered and scored by Psychology Master's students, at this and the subsequent moments of measurement. The patients who took part in the pre-measurement and started the treatment, were also asked to fill in the same questionnaires again at the intermediate measurement before the 33rd week of their treatment ($\mu = 25.07$ weeks, $\sigma = 4.44$), the post-measurement after the 33rd week of their treatment ($\mu = 48.65$ weeks, $\sigma = 11.25$), the 6-month follow-up ($\mu = 74.03$ weeks, $\sigma = 17.25$), and the long-term follow-up measurement about seven years after their treatment had ended ($\mu = 369.28$ weeks, $\sigma = 44.10$). Participants who did not take part in one of the measurements could still do so for the upcoming measurements. For the follow-up measurements participants were contacted via mail if current addresses were available. Participants who did not respond to this first attempt to get in contact, were additionally called if telephone numbers were available.

Data Analysis

The repeated measures data of this study was analyzed using the computer program IBM SPSS Statistics 24. For the analyses general linear mixed model analyses were run. This method involves the advantage of considering cases with missing data points in the analysis, without having to exclude them (Krueger & Tian, 2004). This way, the data of all participants could be taken into account, even though only a minority filled in all tests at all measurement points. Hereby, the mixed model analysis models group means as fixed effects, while considering individual differences as random effects, which allows to include all cases in the analysis and to take both group and individual differences into account (Krueger & Tian, 2004). With adding covariates to the model, interaction effects of these variables on the change in the dependent variable over the different measurement points can be computed.

To gain an overview of the data, firstly, separate analyses for each dependent variable – symptoms, functional/dysfunctional schema modes, and well-being – were executed, with time as a factor to observe their change over time. For each of these analyses, the -2 Restricted Log Likelihood statistics for each covariance type were compared by computing the chi-square distribution of their difference and consulting its p-value. It was found that the unstructured covariance type yielded the strongest model and was therefore used for the mixed model analyses. Furthermore, the analyses yielded estimated marginal means and their standard errors, which were used to comprehend the change over time in the dependent variables. Estimates of fixed effects were consulted to assess whether this change over time was significant. In symptoms a noticeably strong improvement at long-term follow-up was observed, which is why a binary logistic regression was run, to test whether the strong improvement was related to differences in well-being, symptoms, and functional/dysfunctional schema modes between the participants who participated at long-term follow-up and those who did not. The analysis showed that the two groups did not differ significantly in levels of well-being, symptoms, and schema modes at baseline. The model was significant, however, for levels of well-being, symptoms, and schema modes at 6-month follow-up, $\chi^2(3) = 8.894$, $p < .05$. The model explained 26% (Nagelkerke R^2) of the variance in long-term follow-up completion and correctly classified 79.6% of cases. Increased levels of well-being, decreased levels of symptoms, and slightly increased levels of schemas, were however all not significantly associated with participation at the long-term follow-up measurement.

To answer the research questions, well-being at baseline, as well as all three dimensions of well-being, were added as covariate to the model with the dependent variable

in question, in separate analyses. This way, four analyses were run for each of the three dependent variables (symptoms, schema modes, and well-being). Hereby, schema modes were divided into functional and dysfunctional modes (see Materials, Schema Mode Inventory) and each analysis was run for both individually. Since not all participants had filled in the well-being measurement at baseline, a binary logistic regression was run, which showed that the 77 participants who did fill in the baseline measurement did not differ significantly across age, gender, or symptoms and schema modes at baseline, as compared to those who did not fill in the well-being baseline measurement. To execute the analyses on well-being as the dependent variable, an alteration had to be made as the scores of the first measurement of the dependent variable would otherwise have been the same as in the covariate. Therefore, the first measurement of the dependent variable was excluded from the analysis, looking at the effect of baseline well-being on the change in well-being from the intermediate through the long-term follow-up measurement only.

Subsequently, the mixed model analyses were run. Firstly, for each analysis the -2 Restricted Log Likelihood statistics were compared again to examine the strength of the models. The analyses were compared with the basic model without covariate, as well as for the dimensions of well-being with the model with well-being at baseline as a covariate. Secondly, Type III tests of fixed effects were used to assess the interaction effects of well-being and its dimensions on the dependent variables. To understand this interaction for each individual measurement point, parameter estimates of fixed effects were computed and their significance assessed. To take a closer look at the effect of well-being on the dependent variables over time, the participants were sorted into three approximately equal groups of low, moderate, and high levels of well-being at baseline. The same grouping was also done for each of the three dimensions of well-being. The analyses with these grouping variables as added factors, gave more insight into the interaction effects for each group, as assessed with parameter estimates that compared the interaction effect for the low group to the interaction effect for the moderate and high groups at each measurement point. Furthermore, mean differences of estimated marginal means of the three groups gave an indication to whether the main effect of the dependent variable was significantly different for the tree groups from each other.

Results

Out of the 106 participants of this study, 77 participants filled in the MHC-SF at baseline and were therefore included in the analyses. On average, participants of this sub-group scored 1.40 out of 5 on well-being at baseline (SE = .07). On the subscales they scored highest on psychological well-being with a mean score of 1.53 (SE = .07), followed by emotional well-being with 1.31 (SE = .11) and social well-being with 1.31 (SE = .08) at baseline. All these scores are lower than mean scores found in a large patient sample by Van Erp Taalman Kip and Hutschemaekers (2018). The average score at baseline on the SMI was 2.92 out of 6 (SE = .046) on functional modes, and 3.03 out of 6 (SE = .046) on the dysfunctional modes. Hereby, the score on functional modes is low, and on dysfunctional modes high, compared to a clinical sample (Panzeri et al., 2018). For the BSI the average at baseline was 1.79 out of 5 (SE = .06), which is comparable to other clinical samples (Ryan, 2007).

Table 3 shows that participants on average experienced an improvement in symptoms from pre- through post-measurement but showed signs of relapse at 6-month follow-up. At long-term follow-up they then showed the strongest improvement in symptoms (also see Figure 1 for a visual overview). Further, table 3 shows that participants on average experienced an increase in functional schema modes from pre- through post-measurement, with signs of relapse at 6-month follow-up. At long-term follow-up they then showed the strongest improvement in functional modes. Dysfunctional modes on average decreased from pre- through post-measurement, with small signs of relapse at 6-month follow-up and the strongest decrease in dysfunctional modes at long-term follow-up. For well-being it can be observed that participants on average experienced an improvement in well-being from pre- through post-measurement but showed signs of relapse at 6-month follow-up. At long-term follow-up they then showed the strongest improvement in well-being.

For a visual overview of the change in the variables over time, Figure 1 can be consulted. It becomes apparent that the decrease in symptoms and dysfunctional schema modes proceed in a synchronous way, the same as functional modes seem to increase along with the well-being dimensions in a similar way. In the following, the results for each research question are presented, along with the answers to the research questions. A summary of the most important findings can be found in Table 4.

Table 3

Estimated Marginal Means and Standard Errors per Measurement

	M1		M2		M3		M4		M5	
	μ	**SE**	**μ**	**SE**	**μ**	**SE**	**μ**	**SE**	**μ**	**SE**
Emotional well-being	1.31	.11	2.01	.14	2.80	.15	2.43	.16	3.17	.33
Social well-being	1.31	.08	1.79	.12	2.03	.13	1.93	.14	2.42	.27
Psychol. well-being	1.53	.07	2.53	.13	2.97	.14	2.61	.14	3.56	.36
Total well-being	1.40	.07	2.16	.12	2.62	.13	2.32	.13	3.03	.27
Functional Modes	2.92	.05	3.30	.08	3.82	.09	3.54	.10	4.06	.19
Dysfunctional Modes	3.03	.05	2.90	.07	2.45	.09	2.55	.10	2.11	.10
Symptoms	1.79	.06	1.55	.08	1.12	1.09	1.36	.09	.54	.11

Note. M1-5 stand for pre-measurement, intermediate measurement, post-measurement, 6-month follow-up, and long-term follow-up respectively.

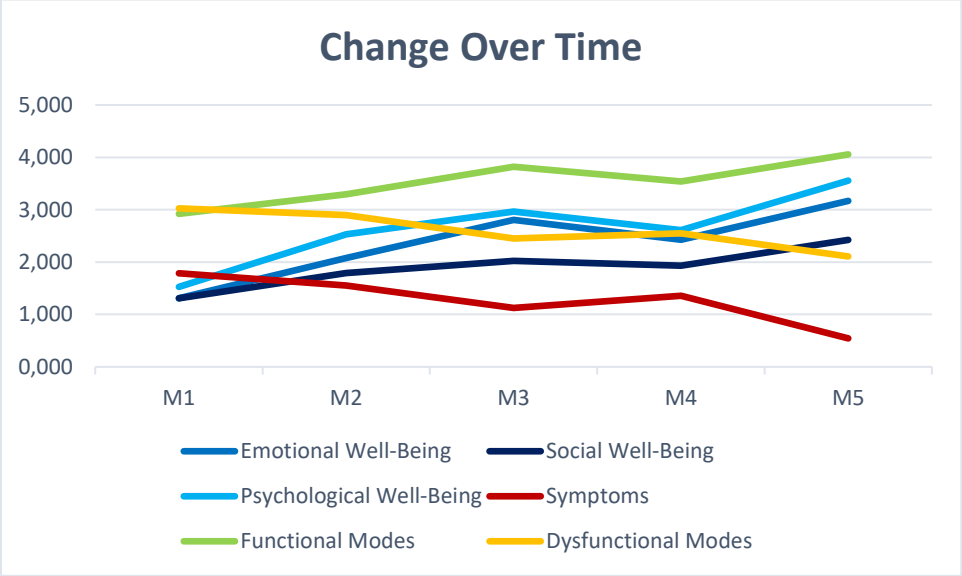

Figure 1. Well-Being, Symptoms, and Schema Modes Over Time

Symptoms

To answer the first research question *how does the level of well-being at baseline influence the change in symptoms over time?* a mixed model repeated measures analysis was run. To gain insight into the change in symptoms over time, the analysis was firstly run with symptoms as the dependent variable and time as a factor. It was found that the difference in symptoms between measurements was indeed significant, $F(4, 24.408) = 24.097$, $p < .001$, also at each measurement point compared to the baseline measurement ($p < .01$), as assessed by parameter estimates of fixed effects.

Well-Being. When introducing well-being at baseline as a covariate to the model, the comparison of the -2 Restricted Log Likelihood statistics showed that the model had gotten significantly stronger ($p < .01$), predicting the change in symptoms better than the model only including time. The interaction effect of time and baseline well-being on symptoms was found to be significant, $F(4, 29.689) = 46.688$, $p < .001$ (see Table 4). This shows that the higher well-being before the intervention, the better the treatment outcome after the intervention, in terms of symptoms. The interaction effect between baseline well-being and the change in symptoms was found to be significantly different at post measurement, as compared to the interaction at baseline, $t(17.883) = 6.983$, $p < .001$. Mean differences of Estimated Marginal Means of the three groups (low, moderate, and high groups added as a factor to the model; see Method, Data Analysis) showed that the main effect between the low and the high group was statistically significant ($p < .05$), which means that symptoms changed differently over time for those with high versus low well-being at baseline. This influence of well-being levels on the decrease in symptoms was especially found at six-month follow-up, as the interaction effect significantly differed at 6-month follow-up for the low group ($t(49.302) = 2.138$, $p < .05$) and the moderate group ($t(49.804) = 2.328$, $p < .05$) as compared to the high group. Estimated Marginal Means showed that participants with high levels of well-being at baseline, showed the most gradual decrease in symptoms over time, without signs of relapse at 6-month follow-up, as opposed to the moderate and low groups. Participants with moderate levels of well-being at baseline showed the strongest decrease at post-measurement, but also a strong increase in symptoms at 6-month follow-up, with again the strongest decrease at long-term follow-up. Participants with low levels of well-being at baseline showed the least improvement in symptoms at post-measurement, showed signs of relapse at 6-month follow-up, and then did not participate in the long-term follow-up (see Figure 2).

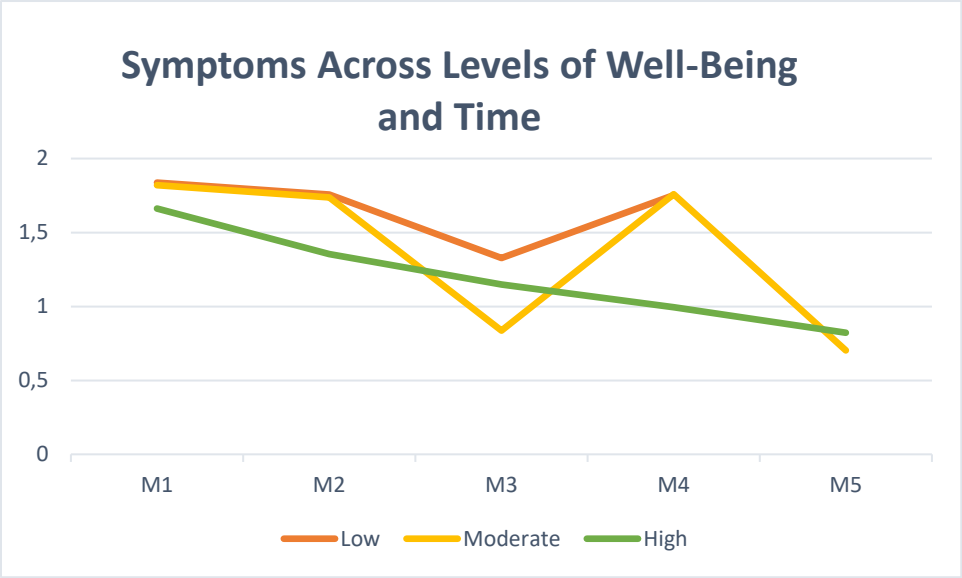

Figure 2. Symptoms Across Levels of Well-Being and Time

Emotional Well-Being. Replicating this analysis with emotional well-being at baseline as covariate, yielded a weaker model than the model using the total well-being score at baseline to explain the change in symptoms over time. The interaction effect of time and emotional well-being on symptoms was found not to be significant, $F(4, 19.548) = 1.021$, $p > .05$. This shows that emotional well-being had no influence on the decrease in symptoms over time. Estimates of fixed effects showed that the interaction effect was not significantly different for any of the five measurements ($p > .05$). Furthermore, the main effect of the change in symptoms over time was found not to differ significantly over the three groups of emotional well-being ($p > .05$; for a visual overview see Appendix A, Figure A1).

Social Well-Being. Replicating the analysis with social well-being at baseline as covariate, yielded a model which did not significantly differ from the model with well-being at baseline as covariate in terms of predictive strength ($p > .05$). The interaction effect of time and social well-being on symptoms was found to be significant, $F(4, 11.421) = 6.251$, $p < .01$, providing proof that higher levels of social well-being were related to the decrease in symptoms. The interaction effect did not differ significantly, however, at any individual measurement point as compared to interaction at baseline ($p > .05$). This shows that the influence of social well-being on symptoms remained about the same over time. Looking at the three groups of social well-being, the main effect of the change in symptoms was found to differ significantly for the moderate group, as compared to the high group ($t(72.037) = 3.515$, $p < .01$; see Appendix A, Figure A2), supporting the conclusion drawn from the significant interaction effect.

Psychological Well-Being. Replicating the analysis with psychological well-being as covariate, yielded a model which did not significantly differ from the model with well-being at baseline as covariate in terms of predictive strength ($p > .05$). The interaction effect of time and psychological well-being on symptoms was found to be significant, $F(4, 19.901) = 3.403$, $p < .05$. This shows that higher levels of well-being were related to the decrease in symptoms. At post measurement this interaction was found to differ significantly from the interaction at baseline, $t(7.436) = 2.669$, $p < .05$. This was specifically found for the moderate group, which differed significantly from the high group in terms of interaction effect on the post-measurement, $t(49.001) = -2.211$, $p < .05$ (see Appendix A, Figure A3). These findings show that psychological well-being was strongly related to the reduction in symptoms.

Based on these findings, the research question *how does the level of well-being and its dimensions at baseline influence the change in symptoms over time?* can be answered. Higher levels of well-being, particularly psychological well-being, but also social well-being, however not emotional well-being, influence the change in symptoms by inducing a stronger and more gradual decrease in symptoms over time, particularly post treatment.

Schema Modes

To answer the second research question *how does the level of well-being at baseline influence the change in functional and dysfunctional schema modes over time?* two separate mixed model repeated measures analyses were run for each functional and dysfunctional modes. To gain insight into the change in functional modes over time, the analysis was firstly run with functional modes as the dependent variable and time as a factor. It was found that the difference in functional modes between measurements was indeed significant, $F(4, 41.438) = 25.604$, $p < .001$. Compared to the baseline measurement, the change was found to be significant at all measurement points ($p < .001$). This shows that the increase in functional modes over time was significant.

Almost the same was found for dysfunctional modes. The difference in dysfunctional modes between measurements was significant, $F(4, 45.617) = 24.952$, $p < .001$, with the change being significant at all measurement points ($p < .001$), except for the intermediate measurement, as compared to baseline ($p > .05$).

Well-Being. When introducing well-being at baseline as a covariate to the model, the model had gotten significantly stronger for both functional and dysfunctional modes ($p < .00001$), predicting the change in modes better than the model only including time.

The interaction effect of time and baseline well-being on functional modes was however found not to be significant, $F(4, 22.511) = 1.214$, $p > .05$ (see Table 4). Well-being

was found not to have an influence on the increase in functional modes. This was confirmed when looking at the estimates of fixed effects for the interaction effect at each individual measurement point, but disconfirmed by the significant main effect of the change in functional modes for the low well-being at baseline group ($t(74.000) = -2.856$, $p < .01$) and the moderate group ($t(74.000) = -2.253$, $p < .05$) as compared to the high group. The non-significant interaction effect ($p > .05$), however, presented additional proof that well-being levels did not influence the increase in functional modes. Although not significant, estimated marginal means showed that participants with high levels of well-being at baseline, showed the most gradual increase in functional schema modes over time, although with a drop at the long-term follow-up measurement (see Appendix B, Figure B1).

The interaction effect of time and baseline well-being on dysfunctional modes was found to be significant, $F(4, 27.894) = 3.422$, $p < .05$, showing that well-being influenced the decrease in dysfunctional modes over time. At 6-month follow-up, the interaction effect between baseline well-being and dysfunctional modes was significantly different for the low well-being at baseline group ($t(53.652) = 2.009$, $p \leq .05$) and the moderate group ($t(54.553) = 2.095$, $p < .05$), as compared to the high group. Estimated marginal means showed that participants with high levels of well-being at baseline, showed the most gradual decrease in dysfunctional schema modes over time, with no relapse at 6-month follow-up, as compared to the low and moderate groups. Participants with low well-being at baseline did not complete the long-term follow-up measurement of schema modes (see Figure 3).

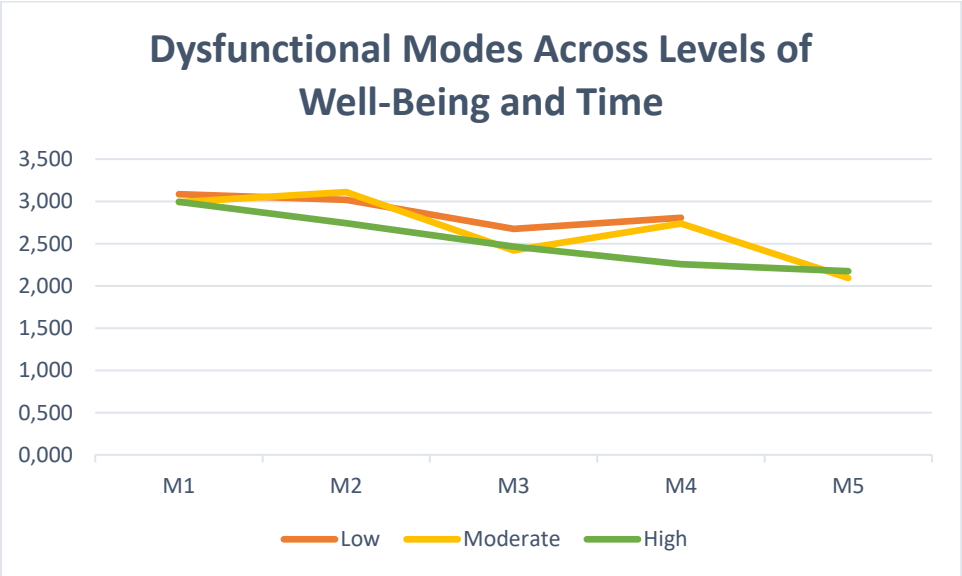

Figure B3. Dysfunctional Schema Modes Across Levels Well-Being and Time

Emotional Well-Being. Replicating the analysis with emotional well-being as covariate, yielded a model which was significantly stronger for functional modes ($p <$ .00001), but significantly weaker for dysfunctional modes ($p < .05$) as compared to the model with well-being at baseline as covariate. This showed that the model was better able to predict the change in functional modes but less able to predict the change in dysfunctional modes.

The interaction effect of time and emotional well-being on functional modes was found not to be significant ($p > .05$), showing that emotional well-being had no influence on functional modes. At 6-month follow-up the interaction was found to be significant, however, $t(56.573) = 2.168$, $p < .05$. At this measurement point, only the low emotional well-being at baseline group differed significantly from the high group in terms of interaction effect, $t(54.571) = -2.031$, $p < .05$ (see Appendix B, Figure B2).

The interaction effect of time and emotional well-being on dysfunctional modes was found to be significant, $F(4, 33.924) = 6.442$, $p < .005$, showing that emotional well-being did have an influence on the decrease in dysfunctional modes over time. At long-term follow-up, this interaction effect differed compared to the interaction at baseline, $t(21.230) = -2.211$, $p <$ .05. For the three levels of emotional well-being, neither main effect nor interaction effect were significant at any measurement point ($p > .05$; see Appendix B, Figure B3). This reduces the meaningfulness of the found influence.

Social Well-Being. Replicating the analysis with social well-being as covariate, yielded a model which was significantly stronger for functional modes compared to the model with well-being at baseline as covariate ($p <$ .00001), as well as compared to the model with emotional well-being as covariate ($p < .001$). For dysfunctional modes the model got significantly stronger as well, compared to both well-being at baseline and emotional well-being at baseline as covariates ($p <$ .00001). This shows that the model with social well-being was better able to predict the change in both functional and dysfunctional modes.

The interaction effect of time and social well-being on functional modes was found not to be significant however ($p > .05$), showing that social well-being had no significant influence on functional modes. This was confirmed when looking at the estimates of fixed effects of the interaction at each individual measurement point. The main effect of functional modes was found to differ significantly for the low level of social well-being at baseline group ($t(74.000) = -2.387$, $p < .05$) and the moderate group ($t(74.000) = -3.683$, $p < .001$), as compared to the high group, disagreeing with the finding before. The interaction effect was not significantly different for any of the groups at any measurement point, however ($p > .05$), which supports the first finding again (see Appendix B, Figure B4).

The interaction effect of time and social well-being on dysfunctional modes was found to be significant, $F(4, 47.411) = 50.135$, $p < .001$. This shows, that social well-being significantly influenced the decrease in dysfunctional modes. This interaction effect remained the same over time. The main effect of dysfunctional modes was found to differ significantly for the low level of social well-being at baseline group ($t(73.000) = 2.330$, $p < .05$) and the moderate group ($t(73.000) = 2.208$, $p < .05$), as compared to the high group. The interaction effect was not significantly different for any of the groups at any measurement point ($p > .05$; see Appendix B, Figure B5), which disagrees with the finding of significant influence.

Psychological Well-Being. Replicating once again the analysis with psychological well-being as covariate, yielded a model which was significantly stronger for functional modes ($p < .00001$), but significantly weaker for dysfunctional modes ($p > .05$), as compared to the model with well-being at baseline as covariate. The model with functional modes was better able to predict the change in functional modes, but less able to predict the change in dysfunctional modes.

The interaction effect of time and psychological well-being on functional modes was found to be significant, $F(4, 21.946) = 7.910$, $p < .001$. This shows that psychological well-being had an influence on the increase in functional modes. At long-term follow-up this interaction differed significantly from the interaction at baseline, $t(18.136) = -2.640$, $p < .05$. At this measurement point the low psychological well-being at baseline group was found to differ significantly from the high group, $t(20.358) = 2.879$, $p < .01$. The main effect for functional modes was found to differ significantly for both the low group ($t(74.000) = -2.204$, $p < .05$) and the moderate group ($t(74.000) = -2.181$, $p < .05$), as compared to the high group (see Appendix B Figure B6). These findings show strong proof for the influence of psychological well-being on functional modes.

The interaction effect of time and psychological well-being on dysfunctional modes was found not to be significant ($p < .05$), showing that psychological well-being did not influence the decrease in dysfunctional modes. The interaction effect remained the same at each individual measurement point. For the three levels of psychological well-being at baseline, no significant difference in terms of main effect was found, the low group differed however significantly from the high group in terms of interaction effect at long-term follow-up, $t(14.640) = -3.735$, $p < .005$, disagreeing with the main finding (see Appendix B Figure B7).

Based on the results presented, the research question *how does the level of well-being at baseline influence the change in functional and dysfunctional schema modes over time?* can

be answered. Although some vague influence of well-being and the dimensions emotional and social well-being on functional modes was visible, only the level of psychological well-being at baseline significantly influenced the increases in functional modes over time. The decrease in dysfunctional modes over time was found to be significantly influenced by levels of well-being and the emotional and social well-being dimensions – strongest so for the social well-being dimension, and with similar overall influences at all measurement points.

Well-Being

To answer the third research question *how does the level of well-being at baseline influence the change in well-being over time?* a mixed model repeated measures analysis was run. To gain insight into the change in well-being over time, the analysis was firstly run with well-being as the dependent variable and time as a factor. It was found that the difference in well-being between measurements was indeed significant, $F(4, 33.767) = 27.354$, $p < .001$, also at each individual measurement point ($p < .001$), as assessed with parameter estimates of fixed effects. This shows that the increase in well-being over time was significant.

When excluding the baseline measurement from the analysis, 60 participants were included and the model became significantly stronger ($p < .00001$). In this analysis the difference in well-being between measurements remained significant, $F(3, 31.135) = 6.821$, $p < .005$. However, well-being at 6-month follow-up was found not to differ significantly from the intermediate measurement ($p > .05$), as opposed to the post- and long-term follow-up measurements ($p < .05$), which indicates the similarity of well-being scores at intermediate and 6-month follow-up measurements.

Well-Being. When introducing well-being at baseline as a covariate to the latter model, the comparison of the -2 Restricted Log Likelihood statistics showed that the model had gotten significantly stronger ($p < .00001$), predicting the change in well-being from second measurement better than the model only including time. The interaction effect of time and baseline well-being on well-being was however found not to be significant, $F(3, 13.101) = .321$, $p > .05$ (see Table 4). This shows that well-being levels at baseline did not influence the increase in well-being over time. This interaction effect remained the same across measurement points. The estimates of fixed effects showed that the main effect of the change in well-being was significantly different for the moderate group ($t(48.458) = -3.018$, $p < .005$) and the low group ($t(47.155) = -3.674$, $p < .005$), as compared to the high level of well-being at baseline group. It shows that the change in well-being was different for the different levels of well-being at baseline. Participants from the low group did not participate in long-term follow-up (see Figure 4).

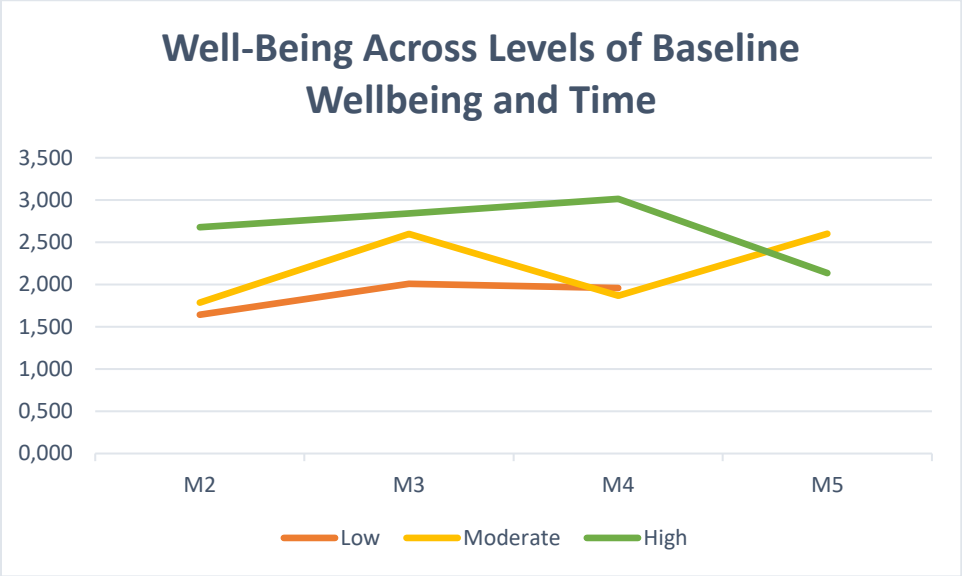

Figure 4. Well-Being Across Levels of Well-Being at Baseline and Time

Emotional Well-Being. Replicating the analysis with emotional well-being as covariate, the strength of the model decreased compared to the model with well-being as the covariate ($p < .00001$). The interaction effect of time and emotional well-being at baseline on well-being was found to be significant, $F(3, 16.393) = 3.388$, $p < .05$. Emotional well-being thus had an influence on the increase in well-being over time. This interaction effect remained the same across measurement points. Estimates of fixed effects show that the main effect of change in well-being was significantly different for the low emotional well-being at baseline group ($t(45.889) = -2.648$, $p < .05$) as compared to the high group (see Appendix C, Figure C1), supporting the initial finding.

Social Well-Being. Replicating the analysis with social well-being as covariate, yielded a model which did not significantly differ from the model with well-being at baseline as covariate in terms of predictive strength ($p > .05$). The interaction effect of time and social well-being at baseline on well-being was found not to be significant, $F(3, 30.021) = 1.300$, $p > .05$. There was thus no influence of social well-being on the change in well-being over time. The interaction effect here as well remained the same across measurements. Furthermore, the main effect of well-being was significantly different for the moderate group ($t(1426873.609) = -2.626$, $p < .01$) and the low group ($t(15360190.23) = -3.097$, $p < .005$), as compared to the high well-being at baseline group. This means that for the different levels of social well-being at baseline, the change in well-being was different. Furthermore, it was found that at long-term follow-up, the interaction effect between baseline social well-being and well-being was significantly different for the moderate social well-being at baseline group ($t(383692.463) =$

4.326, $p < .001$) and the low group ($t(1718411.693) = -6.726$, $p < .001$), as compared to the high group (see Appendix C, Figure C2). This finding contradicts the initial finding.

Psychological Well-Being. Replicating the analysis with psychological well-being as covariate, yielded a model which was significantly stronger than the model with well-being as covariate ($p > .00001$). The interaction effect of time and psychological well-being at baseline on well-being was found to be significant, $F(3, 189.598) = 104482.217$, $p < .001$. This shows that there was a significant influence of psychological well-being on the change in well-being over time. At long-term follow-up, the interaction effect was found to differ from the interaction effect at baseline, $t(90897.500) = -30.813$, $p < .001$. The main effect of well-being was found to differ significantly for the moderate psychological well-being at baseline group ($t(50.222) = -2.633$, $p < .05$) and the low group ($t(47.205) = -3.218$, $p < .005$), as compared to the high group. At post-measurement, the interaction effect was found to differ significantly for the moderate group, as compared to the high group, $t(51.753) = 2.130$, $p < .05$. These findings support the initial finding. Participants from the low levels of psychological well-being at baseline group, did not participate in the long-term follow-up. The other two groups did however, and differed significantly in terms of interaction effect, $t(7.338) = 3.475$, $p < .05$ (see Appendix C, Figure C3).

Based on these findings, the research question *how does the level of well-being and its dimensions at baseline influence the change in well-being over time?* can be answered. Higher levels of emotional and particularly of psychological well-being at baseline were found to influence the increase in well-being over the course of treatment, with psychological well-being being most influential at post measurement and long-term follow-up.

Table 4

Interaction Effects of the Change in the Outcome Variables over Time with Well-Being and its Dimensions

Dependent Variable		Covariates	Interaction Effect
Symptoms		Well-being	$F(4, 29.689) = 46.688$, $p < .001$*
		Emotional	$F(4, 19.548) = 1.021$, $p > .05$
		Social	$F(4, 11.421) = 6.251$, $p < .01$*
		Psychological	$F(4, 19.901) = 3.403$, $p < .05$*
Schema Modes	Functional	Well-being	$F(4, 22.511) = 1.214$, $p > .05$
		Emotional	$F(4, 20.968) = 2.483$, $p > .05$
		Social	$F(4, 21.984) = .944$, $p > .05$

		Psychological	$F(4, 21.946) = 7.910, p < .001$*
	Dysfunctional	Well-being	$F(4, 27.894) = 3.422, p < .05$*
		Emotional	$F(4, 33.924) = 6.442, p < .005$*
		Social	$F(4, 47.411) = 50.135, p < .001$*
		Psychological	$F(4, 26.945) = 1.791, p > .05$
Well-Being		Well-being	$F(3, 13.101) = .321, p > .05$
		Emotional	$F(3, 16.393) = 3.388, p < .05$*
		Social	$F(3, 30.021) = 1.300, p > .05$
		Psychological	$F(3, 189.598) = 104482.217, p < .001$*

Note. Significant interaction effects are flagged with a *

Discussion

This study aimed to explore the influence of well-being and its three dimensions on the recovery process in PD patients undergoing inpatient group schema therapy. The findings intend to contribute to a gain in knowledge about (personal) recovery in PD patients and the two continua model, holding first indications about whether the promotion of well-being might enhance process and outcome of treatment.

The first research question was answered with the finding that well-being, especially psychological well-being, was strongest connected to the reduction in symptoms over time, showing that patients with higher well-being at baseline seemed to profit most from treatment, with the most sustained improvements in symptoms. The second research question was answered with the findings that for schema modes, higher levels of psychological well-being were found to have an influence on the increases in functional modes over time, but not on the decreases in dysfunctional modes, as opposed to the other dimensions of well-being. Finally, the third research question was answered with the finding that higher levels of emotional and particularly of psychological well-being at baseline were found to influence the increase in well-being over the course of treatment. For all outcome measures the most gradual course of recovery was observable in patients with high(er) levels of well-being at baseline. In the following, these findings will be discussed in light of existing literature for each form of well-being individually.

Well-Being

The findings that patients with higher well-being at baseline show stronger improvements on symptoms and dysfunctional schema modes, is according expectations. It is

in line with the recognition in literature that well-being and psychopathology are related, but different concepts, as also assumed in the two continua model (Keyes, 2005). In fact, research has shown that there is indeed a significant negative association between well-being and psychopathology (Bartels, Cacioppo, Van Beijsterveldt, & Boomsma, 2013), which is also reflected by the observation of the present study that high levels of well-being are linked to lower levels of symptoms and dysfunctional schema modes. In this sense, dysfunctional schema modes can be understood as displaying PD specific pathology. Since an increased activation of the healthy adult mode, was found to help in decreasing dysfunctional schema modes (Young et al., 2003), it could have been expected that the decrease in dysfunctional modes was initiated rather by the increases in functional modes than well-being at baseline. In that case, rather the increases in functional modes could have been assumed to be influenced by higher well-being levels. This not being the case, rather points into the direction that the relationship between well-being and functional modes is more stable than with dysfunctional modes, being more trait- than state-like. In other words, patients with higher well-being at baseline might have higher levels of functional modes at baseline as well and improve to the same degree as patients with low well-being and low functional modes at baseline. Considering that well-being and functional modes have constructs like positive emotions or healthy behaviors in common, this reasoning appears plausible. The same might hold for the surprising non-existence of an influential effect of well-being at baseline levels on the course of well-being over time. Studies showing that there is a link between personality traits and well-being (Aldridge & Gore, 2016) support this assumption of well-being and its improvements being more stable and independent of different levels at the start of treatment.

Emotional Well-Being

Schema modes can be understood as patients' emotional responses when a schema has been activated (Young et al., 2003). When a dysfunctional schema is activated, the emotional response could be considered low positive emotions, or low levels of emotional well-being. With this reasoning, higher levels of emotional well-being, might then have an impact on dysfunctional modes, as they might be less likely to occur. This would be in line with the finding that emotional well-being had an influence on dysfunctional modes. Furthermore, according to broaden-and build theory (Fredrickson, 2004), positive emotions (emotional well-being) broaden attention and perception abilities, which might allow the apprehension of schema-contradicting information, which is usually ignored (Young et al., 2003). They therewith might resolve schemas and decrease dysfunctional modes. However, the building effect attributed to positive emotions according to this theory, could be expected to have a

favorable influence on the functional modes – building more resources to think and act in a more functional way. This was, however, not found. The same reasoning could be applied here as for well-being and functional modes in the previous paragraph. More research would be needed here, however. Next to the influence of emotional well-being on dysfunctional modes, a significant influence was also found for well-being. This is in line with expectations derived from broaden-and-build theory as well and the upward spiral of positive emotions (Fredrickson & Joiner, 2002; Garland et al., 2010; Stiglbauer, Gnambs, Gamsjäger, & Batinic, 2013). That higher emotional well-being was found to be linked to stronger increases in well-being over time, is prove for the existence of this upward spiral. It could also have been expected that high levels of emotional well-being at baseline are related to decreases in symptoms as broaden-and-build theory has also shown that higher emotional well-being can buffer against psychopathology (Fredrickson, 2004). Here as well, the relationship between emotional well-being and symptoms seems to be more stable over time, however.

Social Well-Being

Social well-being was found to have an influence on the decreases in symptoms and dysfunctional modes. Although, it has been shown that concepts of social well-being such as positive personal relationships or connectedness are important for PD patients for their personal recovery (Shepherd, Sanders, Doyle, & Shaw, 2015), the found influence on symptoms and dysfunctional modes, is rather indicative for clinical recovery (Anthony, 1993) being facilitated by higher social well-being. As personal recovery has been found to be strongly related to well-being (Kraiss et al., 2019), prove for personal recovery being achieved would rather have been found in a significant influence on well-being. Social well-being, as part of eudaimonic well-being, is related to positive functioning (Lee & Carey, 2013), and positive functioning could be expected to be related to functional modes. Therefore, the non-existence of an influence of social well-being on functional modes either shows that personal recovery is indeed not achieved and/or that the relationship here again is stable. It is also possible that this finding is connected to the comparably low improvements in social well-being over time, which could be connected to the isolation from society patients might perceive while staying at the clinic. Support for the significant interaction effects of social well-being and dysfunctional modes and symptoms, comes from the fact that social factors, such as social relationships and social support, are very important for the recovery from mental illness (Coyne & Downey, 1991). Recovering from personality disorders in the clinical sense means improvements in schema modes (Young et al., 2003), and improvements

in psychopathology (Davey, 2014). The findings show that indeed social relationships etc. were promoting clinical recovery from personality disorders.

Psychological Well-Being

Psychological well-being was found to have an influence on the decrease in symptoms over time. Indeed, it has been found that the perception of greater meaning in life – an important component of psychological well-being – was connected to lower levels of psychopathology (Steger, 2012). One study by Contreras et al. (2017) showed that undergraduate students with higher psychological well-being were found to also have lower levels of psychopathology, which supports the findings of the present study. When applying the reasoning as done in the previous paragraph, dysfunctional modes also belong to this psychopathology. However, no significant interaction was found here, instead the influence was found to be significant for functional modes and well-being. As according to previous reasoning, these two might indicate the achievement of personal recovery. What might have happened here, is that the buffering effect of psychological well-being against daily stresses (Nurius et al., 2015) has improved coping and build resources, which lead to increases in functional modes and well-being. If this is the case, the findings would suggest that personal recovery is more related to psychological well-being than to social well-being. In any case, the influence of psychological well-being was found to be strongest.

Strengths and Limitations

As far as is known, this study is (one of) the first exploring the influence of well-being levels in PD patients before schema therapy on treatment success in terms of symptoms, schema modes, and well-being. This uniqueness involves both a strength and a limitation. It can be understood as a strength as it contributes unique knowledge on well-being and its dimensions, that is relevant and applicable to practice, opening a promising new area of research to deepen and validate this knowledge. It can be understood as a limitation, since findings can only in a limited way be compared to prior findings, as these are very sparce or do not yet exist, which also limits the immediate meaningfulness of findings. Another strength is the longitudinal character of this study, illustrating change over a long period of time. This way, really the process of recovery and the influence of well-being during and after treatment can be grasped, and findings are not limited to one outcome measurement. That the study used data from clinical practice is a strength and a limitation as well. Missing data points, are a limitation, however, the mixed model approach for handling this, can be understood as a strengths, allowing to take all cases into account, also the ones with missing data points (Krueger & Tian, 2004). A clear limitation is the small sample size at long-term follow-up.

Therefore, all findings for the long-term follow-up measurement have to be understood with caution, also because patients with low levels of well-being and/or its dimensions at baseline frequently did not take part in the long-term follow-up measurement. Also, it exceeded the scope of this research to direct attention towards the impact of well-being on specific symptoms such as anxiety or depression, or even symptoms of personality pathology, as well as towards the effect of well-being and its dimensions also on each individual dimension.

Implications

The findings of well-being on symptoms hold the strongest implications of the present study. The clear influence of higher well-being levels on improvements in symptoms, suggest that treatment outcomes could be significantly improved for those with low levels of well-being at the start of treatment, by promoting well-being in this PD subgroup first. This is especially true for psychological well-being. Promoting psychological well-being at the start of the intervention might also lead to stronger increases in well-being and functional modes. With this, better personal recovery might possibly be reached as well. Dysfunctional modes could be decreased by promoting well-being in general, but also emotional and social well-being. The present study has shown that treatments for personality disorders should not only direct attention towards decreasing psychopathology, but also towards well-being and well-being promotion to reach better treatment outcomes in more PD patients. The study therewith also provides further prove of the two continua model.

Recommendations

Since the present study has an explorative character, it is recommended for future research to replicate the findings of this study at other clinics treating personality disorders with schema therapy, for instance. These studies should include larger samples to receive more meaningful results. Furthermore, as a next step, it is recommended to investigate the influence of well-being and its dimensions on each of the three outcome variables individually and in randomly controlled trials, as this will yield more meaningful and comparable results (Cartwright, 2007).

Conclusion

Findings of this present study showed that higher levels of well-being, particularly psychological well-being, and also social but not emotional well-being, induced a stronger and more gradual decrease in symptoms over time, particularly post treatment. For schema modes, higher levels of psychological well-being were found to have an influence on the increases in functional modes over time, but not on the decreases in dysfunctional modes, as opposed to the other dimensions of well-being. Higher levels of emotional and particularly of

psychological well-being at baseline were also found to influence the increase in well-being over the course of treatment. While findings for the long-term follow-up measurement point have to be considered with caution, due to a small sample size and non-participation of those with low levels of well-being, the findings still provide further proof for the two continua model. This was shown by the clear relation between psychopathology and well-being, however with low levels of the one being not necessarily related to high levels of the other, showing that they do not lie on the same continuum. Findings imply that promoting well-being, particularly psychological, in PD patients with low levels of well-being at the start of the treatment, might improve treatment success. These findings call for replication and further exploration by future research.

References

Aldridge, T. R., & Gore, J. S. (2016). Linking Personality Traits with Well-Being: The Influence of Primary Social Roles. *Psychological Studies, 61*(3), 233-244. doi:10.1007/s12646-016-0370-x

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal*, *16*(4), 11–23. doi: 10.1037/h0095655

Bamelis, L. L. M., Evers, S. M. A. A., Spinhoven, P., & Arntz, A. (2014). Results of a multicenter randomized controlled trial of the clinical effectiveness of schema therapy for personality disorders. The American Journal of Psychiatry, 171, 305–322. http://dx.doi.org/10.1176/appi.ajp .2013.12040518

Bartels, M., Cacioppo, J. T., Van Beijsterveldt, T. C., & Boomsma, D. I. (2013). Exploring the Association Between Well-Being and Psychopathology in Adolescents. *Behavior Genetics, 43*(3), 177-190. doi:10.1007/s10519-013-9589-7

Barth, J., Munder, T., Gerger, H., Nüesch, E., Trelle, S., Znoj, H., … Cuijpers, P. (2016). Comparative Efficacy of Seven Psychotherapeutic Interventions for Patients with Depression: A Network Meta-Analysis. *Focus*, *14*(2), 229–243. https://doi.org/10.1176/appi.focus.140201

Bateman, A. W., Gunderson, J., & Mulder, R. (2015). Treatment of personality disorder. *The Lancet, 385*(9969), 735–743. https://doi.org/10.1016/S0140-6736(14)61394-5

Bender, D.S., Morey, L.C. & Skodol, A.E. (2011). Toward a model for assessing level of personality functioning in DSM-5. Part I: A review of theory and methods. *Journal of Personality Assessment, 93*(4), 332–346. https://doi.org/10.1080/00223891.2011.583808

de Beurs, E., & Zitman, F. G. (2006). De Brief Symptom Inventory (BSI): De betrouwbaarheid en validiteit van een handzaam alternatief voor de SCL-90. *Maandblad Geestelijke Volksgezondheid*, 61, 120-141.

Brewer, W. F., & Treyens, J. C. (1981). Role of schemata in memory for places. *Cognitive Psychology*, *13*(2), 207–230. https://doi.org/10.1016/0010-0285(81)90008-6

Brown, M. Z., & Chapman, A. L. (2007). Stopping Self-Harm Once and for All. *Therapists Guide to Evidence-Based Relapse Prevention*, 191–213. https://doi.org/10.1016/B978-012369429-4/50039-2

Cailhol, L., Damsa, C., Marclay, L., Burnand, Y., Lazignac, C., & Andreoli, A. (2007). Facteurs prédictifs de la récidive du comportement suicidaire chez des patients souffrant d'un trouble de personnalité borderline. *LEncéphale*, *33*(2), 156–159. https://doi.org/10.1016/S0013-7006(07)91545-6

Cartwright, N. (2007). Are RCTs the Gold Standard? *BioSocieties, 2*(1), 11-20. doi:10.1017/s1745855207005029

Chakhssi, F., Kraiss, J. T., Sommers-Spijkerman, M., & Bohlmeijer, E. T. (2018). The effect of positive psychology interventions on well-being and distress in clinical samples with psychiatric or somatic disorders: A systematic review and meta-analysis. *BMC Psychiatry, 18*(1). https://doi.org/10.1186/s12888-018-1739-2

Chan, R. C. H., Mak, W. W. S., Chio, F. H. N., & Tong, A. C. Y. (2018). Flourishing With Psychosis: A Prospective Examination on the Interactions Between Clinical, Functional, and Personal Recovery Processes on Well-being Among Individuals with Schizophrenia Spectrum Disorders. *Schizophrenia Bulletin*, *44*(4), 778–786. https://doi.org/10.1093/schbul/sbx120

Contreras, M., León, A. M., Martínez, E., Peña, E. M., Marques, L., & Gallegos, J. (2017). Psychopathological Symptoms and Psychological Well-being in Mexican Undergraduates. *International Journal of Social Science Studies, 5*(6), 30. doi:10.11114/ijsss.v5i6.2287

Coyne, J. C., & Downey, G. (1991). Social Factors and Psychopathology: Stress, Social Support, and Coping Processes. *Annual Review of Psychology, 42*(1), 401-425. doi:10.1146/annurev.ps.42.020191.002153

Davey, G. (2014). *Psychopathology: Research, assessment and treatment in clinical psychology*. London: The British Psychological Society.

Derogatis, L. R., & Melisaratos, N. (1983). The Brief Symptom Inventory: an introductory report. *Psychological Medicine*, *13*(3), 595–605. https://doi.org/10.1017/S0033291700048017

Dolan, B., Warren, F., Menzies, D., & Norton, K. (1996). Cost-offset following specialist treatment of severe personality disorders. *Psychiatric Bulletin, 20*(7), 413-417. https://doi.org/10.1192/pb.20.7.413

Drobnjak, S. (2013) Brief Symptom Inventory. In: Gellman M.D., Turner J.R. (eds*) Encyclopedia of Behavioral Medicine*. Springer, New York, NY

Duckworth, A. L., Steen, T. A., & Seligman, M. E. P. (2005). Positive Psychology in Clinical Practice. *Annual Review of Clinical Psychology*, *1*, 629–651. https://doi.org/10.1146/annurev.clinpsy.1.102803.144154

Farrell, J. M., Shaw, I. A., & Webber, M. A. (2009). A schema-focused approach to group psychotherapy for outpatients with borderline personality disorder: A randomized controlled trial. *Journal of Behavior Therapy and Experimental Psychiatry*, *40*(2), 317–328. https://doi.org/10.1016/j.jbtep.2009.01.002

Fournier, J. C., DeRubeis, R. J., Shelton, R. C., Gallop, R., Amsterdam, J. D., & Hollon, S. D. (2008). Antidepressant medications v. cognitive therapy in people with depression with or without personality disorder. The British Journal of Psychiatry, 192, 124 –129. http://dx.doi.org/10 .1192/bjp.bp.107.037234

Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *The Science of Well-Being*, *359*(1449), 216–239. https://doi.org/10.1098/rstb.2004.1512

Fredrickson, B. L., & Joiner, T. (2002). Positive Emotions Trigger Upward Spirals Toward Emotional Well-Being. *Psychological Science*, *13*(2), 172–175. doi: 10.1111/1467-9280.00431

Gabbard, G. O. (2000). Psychotherapy of personality disorders. *The Journal of Psychotherapy Practice and Research, 9*(1), 1–6. https://doi.org/10.1176/appi.ps.51.7.893

Garland, E. L., Fredrickson, B., Kring, A. M., Johnson, D. P., Meyer, P. S., & Penn, D. L. (2010). Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of emotion dysfunctions and deficits in psychopathology. *Clinical Psychology Review*, *30*(7), 849–864. https://doi.org/10.1016/j.cpr.2010.03.002

Gillard, S., Turner, K., & Neffgen, M. (2015). Understanding recovery in the context of lived experience of personality disorders: a collaborative, qualitative research study. *BMC Psychiatry*, *15*(1). https://doi.org/10.1186/s12888-015-0572-0

Iasiello, M., Agteren, J. V., & Cochrane, E. M. (2020). Mental Health and/or Mental Illness: A Scoping Review of the Evidence and Implications of the Dual-Continua Model of Mental Health. *Evidence Base*, *2020*(1), 1–45. https://doi.org/10.21307/eb-2020-001

Jacob, G. A., & Arntz, A. (2013). Schema Therapy for Personality Disorders—A Review. *International Journal of Cognitive Therapy*, *6*(2), 171–185. https://doi.org/10.1521/ijct.2013.6.2.171

Keyes, C. L. M. (1998). Social Well-Being. *Social Psychology Quarterly, 61*(2), 121-140. doi: 10.2307/2787065

Keyes, C. L. M., & Lopez, S. J. (2002). Toward a Science of Mental Health. In Snyder, C. R., & Lopez, S. J. (Eds.), *Handbook of Positive Psychology* (pp. 45-59). New York: Oxford University Press.

Keyes, C. L. M. (2005). Mental Illness and/or Mental Health? Investigating Axioms of the Complete State Model of Health. *Journal of Consulting and Clinical Psychology, 73*(3), 539–548. https://doi.org/10.1037/0022-006X.73.3.539

Keyes, C. L. M. (2009). Toward a Science of Mental Health. In Lopez, S. J., & Snyder, C. R. (Eds.), Oxford Handbook of Positive Psychology (pp. 89-91). New York: Oxford University Press.

Keyes, C. L. M., Dhingra, S. S., & Simoes, E. J. (2011). Change in Level of Positive Mental Health as a Predictor of Future Risk of Mental Illness. *American Journal of Public Health*, *100*(12), 2366–2371. doi: 10.2105/ajph.2010.192245

Kraiss, J. T., Klooster, P. M., Chrispijn, M., Stevens, A. W., Kupka, R. W., & Bohlmeijer, E. T. (2019). Measuring personal recovery in people with bipolar disorder and exploring its relationship with well-being and social role participation. *Clinical Psychology & Psychotherapy*, *26*(5), 540–549. https://doi.org/10.1002/cpp.2371

Krueger, C., & Tian, L. (2004). A Comparison of the General Linear Mixed Model and Repeated Measures ANOVA Using a Dataset with Multiple Missing Data Points. *Biological Research For Nursing, 6*(2), 151-157. doi:10.1177/1099800404267682

Kverme, B., Natvik, E., Veseth, M., & Moltu, C. (2019). Moving Toward Connectedness – A Qualitative Study of Recovery Processes for People With Borderline Personality Disorder. *Frontiers in Psychology*, *10*, 430. https://doi.org/10.3389/fpsyg.2019.00430

Lamers, S., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. (2011). Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *Journal of clinical psychology*, *67*(1), 99-110. doi:10.1002/jclp.20741

Lamers, S. M., Westerhof, G. J., Glas, C. A., & Bohlmeijer, E. T. (2015). The bidirectional relation between positive mental health and psychopathology in a longitudinal representative panel study. *The Journal of Positive Psychology*, *10*(6), 553–560. https://doi.org/10.1080/17439760.2015.1015156

Leamy, M., Bird, V., Boutillier, C. L., Williams, J., & Slade, M. (2011). Conceptual framework for personal recovery in mental health: systematic review and narrative synthesis. *British Journal of Psychiatry*, *199*(6), 445–452. https://doi.org/10.1192/bjp.bp.110.083733

Lee, E., & Carey, T. (2013). *Eudaimonic well-being as a core concept of positive functioning*. Retrieved on June 30, 2020, from https://www.researchgate.net/profile/Elliott_Lee/publication/298213675_Eudaimonic_Well-Being_as_a_Core_Concept_of_Positive_Functioning/links/56e6f75708ae4c354b1a4b4f/Eudaimonic-Well-Being-as-a-Core-Concept-of-Positive-Functioning.pdf

Leichsenring, F. & Leibing, E. (2003). The effectiveness of psychodynamic therapy and cognitive behavior therapy in the treatment of personality disorders: A meta-analysis. *American Journal of Psychiatry, 160*(7), 1223–32. https://doi.org/10.1176/appi.ajp.160.7.1223

Lobbestael, J., Vreeswijk, M. F. V., & Arntz, A. (2008). An empirical test of schema mode conceptualizations in personality disorders. *Behaviour Research and Therapy*, *46*(7), 854–860. https://doi.org/10.1016/j.brat.2008.03.006

Lobbestael, J., Vreeswijk, M. V., Spinhoven, P., Schouten, E., & Arntz, A. (2010). Reliability and Validity of the Short Schema Mode Inventory (SMI). *Behavioural and Cognitive Psychotherapy*, *38*(4), 437–458. https://doi.org/10.1017/S1352465810000226

Masley, S. A., Gillanders, D. T., Simpson, S. G., & Taylor, M. A. (2012). A Systematic Review of the Evidence Base for Schema Therapy. *Cognitive Behaviour Therapy*, *41*(3), 185–202. https://doi.org/10.1080/16506073.2011.614274

Mohammad Nezhady, B. & Rabiei, M. (2015). The Effect of Schema Therapy on Quality of Life and Psychological Well-being in Divorced Women. *Journal of Police Medicine, 4(*3), 179-190. Retrieved on June 21, 2020, from http://teb.police.ir/teb/article-1-389-en.html

Muste, E., Weertman, A., & Claassen, A. (2009). *Werkboek klinische schematherapie*. Houten: Bohn Stafleu van Loghum.

Newton-Howes, G., Tyrer, P., & Weaver, T. (2008). Social Functioning of Patients With Personality Disorder in Secondary Care. *Psychiatric Services, 59*(9), 1033-1037. doi:10.1176/ps.2008.59.9.1033

Nurius, P. S., Green, S., Logan-Greene, P., & Borja, S. (2015). Life course pathways of adverse childhood experiences toward adult psychological well-being: A stress process analysis. *Child Abuse & Neglect, 45*, 143-153. https://doi.org/10.1016/j.chiabu.2015.03.008

Panzeri, M., Fontanesi, L., Busà, C., Carmelita, A., Ronconi, L., & Dadomo, H. (2018). A Contribution to Validation of the Short Schema Mode Inventory in an Italian Clinical Versus Non-clinical Population. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 37*(2), 149-171. https://doi.org/10.1007/s10942-018-0299-1

Renner, F., Goor, M. V., Huibers, M., Arntz, A., Butz, B., & Bernstein, D. (2013). Short-term group schema cognitive-behavioral therapy for young adults with personality disorders and personality disorder features: Associations with changes in symptomatic distress, schemas, schema modes and coping styles. *Behaviour Research and Therapy*, *51*(8), 487–492. https://doi.org/10.1016/j.brat.2013.05.011

Renshaw, T. L., & Cohen, A. S. (2013). Erratum to: Life Satisfaction as a Distinguishing Indicator of College Student Functioning: Further Validation of the Two-Continua Model of Mental Health. *Social Indicators Research*, *117*(1), 335–335. doi: http://dx.doi.org/10.1007/s11205-013-0509-2

Roberts, G., & Boardman, J. (2013). Understanding 'recovery'. *Advances in Psychiatric Treatment, 19*(6), 400-409. https://doi.org/10.1192/apt.bp.112.010355

Ruini, C., Ottolini, F., Tomba, E., Belaise, C., Albieri, E., Visani, D., . . . Fava, G. A. (2009). School intervention for promoting psychological well-being in adolescence. *Journal of Behavior Therapy and Experimental Psychiatry, 40*(4), 522-532. doi:10.1016/j.jbtep.2009.07.002

Ryan, C. (2007). British outpatient norms for the Brief Symptom Inventory. *Psychology and Psychotherapy: Theory, Research and Practice, 80*(2), 183-191. https://doi.org/10.1348/147608306X111165

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. doi: 10.1037/0022-3514.69.4.719

Schaap, G. M., Chakhssi, F., & Westerhof, G. J. (2016). Inpatient schema therapy for nonresponsive patients with personality pathology: Changes in symptomatic distress, schemas, schema modes, coping styles, experienced parenting styles, and mental well-being. *Psychotherapy*, *53*(4), 402–412. https://psycnet.apa.org/doi/10.1037/pst0000056

Schön, U., Denhov, A., & Topor, A. (2009). Social Relationships as a Decisive Factor in Recovering From Severe Mental Illness. *International Journal of Social Psychiatry, 55*(4), 336-347. https://doi.org/10.1177%2F0020764008093686

Seligman M.E.P., Csikszentmihalyi M. (2014) Positive Psychology: An Introduction. In: Flow and the Foundations of Positive Psychology. Springer, Dordrecht

Shapiro, D. A., & Shapiro, D. (1982). Meta-analysis of comparative therapy outcome studies: A replication and refinement. *Psychological Bulletin*, *92*(3), 581–604. https://psycnet.apa.org/doi/10.1037/0033-2909.92.3.581

Shepherd, A., Sanders, C., Doyle, M., & Shaw, J. (2015). Personal recovery in personality disorder: Systematic review and meta-synthesis of qualitative methods studies. *International Journal of Social Psychiatry*, *62*(1), 41–50. https://doi.org/10.1177/0020764015589133

Skewes, S. A., Samson, R. A., Simpson, S. G., & Vreeswijk, M. V. (2015). Short-term group schema therapy for mixed personality disorders: a pilot study. *Frontiers in Psychology*, *5*. https://doi.org/10.3389/fpsyg.2014.01592

Smith, S., Yeomans, D., Bushe, C. J., Eriksson, C., Harrison, T., Holmes, R., . . . Sullivan, G. (2007). A well-being programme in severe mental illness. reducing risk for physical ill-health: A post-programme service evaluation at 2 years. *European Psychiatry, 22*(7), 413-418. https://doi.org/10.1016/j.eurpsy.2007.07.002

Stanga, V., Turrina, C., Valsecchi, P., Sacchetti, E., & Vita, A. (2019). Well-being in patients with schizophrenia, mood and personality disorders attending psychiatric services in the community. A controlled study. *Comprehensive Psychiatry, 91*, 1-5. https://doi.org/10.1016/j.comppsych.2019.02.001

Steger, M. F. (2012). *Experiencing meaning in life: Optimal functioning at the nexus of well-being, psychopathology, and spirituality.* In P. T. P. Wong (Ed.), *Personality and clinical psychology series. The human quest for meaning: Theories, research, and applications* (p. 165–184). Routledge/Taylor & Francis Group.

Stiglbauer, B., Gnambs, T., Gamsjäger, M., & Batinic, B. (2013). The upward spiral of adolescents positive school experiences and happiness: Investigating reciprocal effects over time. *Journal of School Psychology*, *51*(2), 231–242. https://doi.org/10.1016/j.jsp.2012.12.002

Thunnissen, M. M., & Muste, E. H. (2002). Schematherapie in de klinisch-psychotherapeutische behandeling van persoonlijkheidsstoornissen. *Tijdschrift Voor Psychotherapie*, *28*(5), 122–131. https://doi.org/10.1007/BF03061969

Trompetter, H. R., Lamers, S. M. A., Westerhof, G. J., Fledderus, M., & Bohlmeijer, E. T. (2017). Both positive mental health and psychopathology should be monitored in psychotherapy: Confirmation for the dual-factor model in acceptance and commitment therapy. *Behaviour Research and Therapy*, *91*, 58–63. https://doi.org.ezproxy2.utwente.nl/10.1016/j.brat.2017.01.008

Turner, K., Lovell, K., & Brooker, A. (2011). '… and they all lived happily ever after': 'recovery' or discovery of the self in personality disorder? *Psychodynamic Practice*, *17*(3), 341–346. https://doi.org/10.1080/14753634.2011.587604

Van Erp Taalman Kip, R. M., & Hutschemaekers, G. J. (2018). Health, well-being, and psychopathology in a clinical population: Structure and discriminant validity of Mental Health Continuum Short Form (MHC-SF). *Journal of Clinical Psychology, 74*(10), 1719-1729. https://doi.org/10.1002/jclp.22621

Vos, M. K.-D., Bernstein, D. P., Clark, L. A., Vogel, V. D., Bogaerts, S., Slaats, M., & Arntz, A. (2017). Validation of the schema mode concept in personality disordered offenders. *Legal and Criminological Psychology*, *22*(2), 420–441. https://doi.org/10.1111/lcrp.12109

Westerhof, G. J., & Keyes, C. L. M. (2010). Mental Illness and Mental Health: The Two Continua Model Across the Lifespan. *Journal of Adult Development*, *17*, 110–119. https://doi.org/10.1007/s10804-009-9082-y

WHO. (2018). Mental health: strengthening our response. Retrieved April 23, 2020, from https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

Wolterink, T., & Westerhof, G. (2018). Verandering van schemamodi en klachten bij cliënten met complexe persoonlijkheidsproblematiek: Een naturalistische volgstudie in een klinische setting [Change of schema modes and psychological distress in clients with complex personality problems during and after an inpatient schema therapeutic treatment: A naturalistic prospective study]. *Gedragstherapie, 51*(1), 24–43.

Wood, A. M., & Joseph, S. (2010). The absence of positive psychological (eudemonic) well-being as a risk factor for depression: A ten year cohort study. *Journal of Affective Disorders*, *122*(3), 213–217. https://doi.org/10.1016/j.jad.2009.06.032

Young, J. E., Arntz, A., Atkinson, T., Lobbestael, J., Weishaar, M. E., & van Vreeswijk, M. F. (2007). *The Schema Mode Inventory*. New York: Schema Therapy Institute.

Appendix

Appendix A: Symptoms and Well-Being

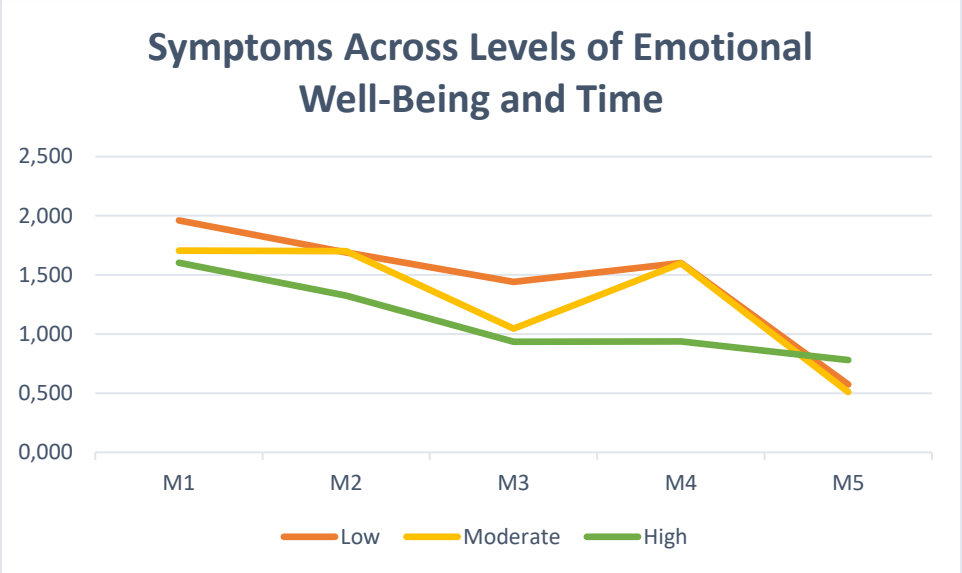

Figure A1. Symptoms Across Levels of Emotional Well-Being and Time

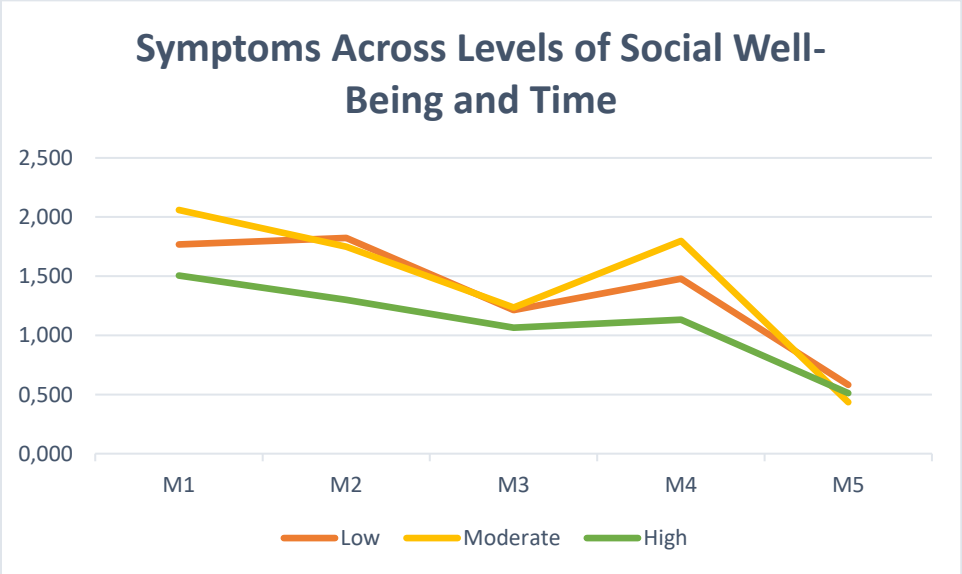

Figure A2. Symptoms Across Levels of Social Well-Being and Time

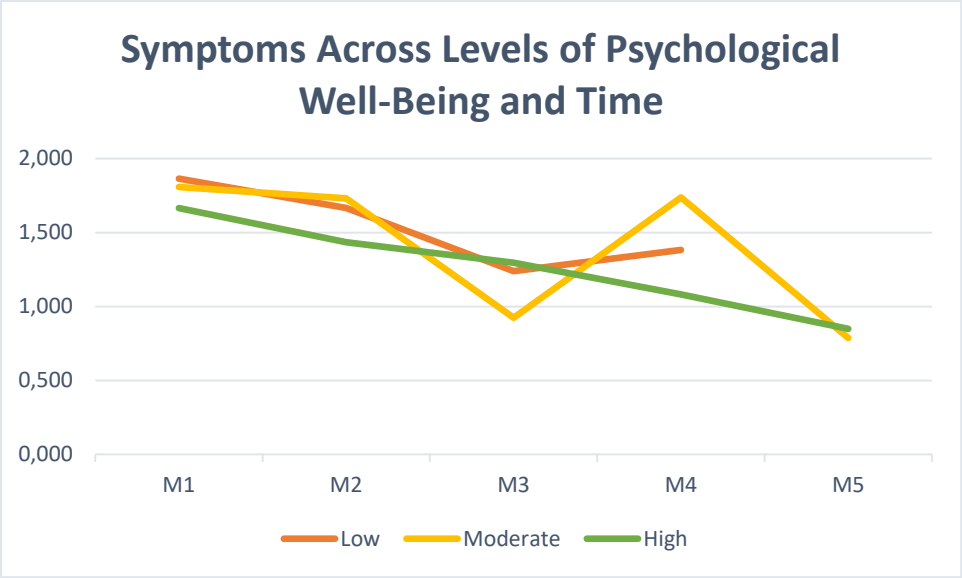

Figure A3. Symptoms Across Levels of Psychological Well-Being and Time

Appendix B: Modes and Well-Being

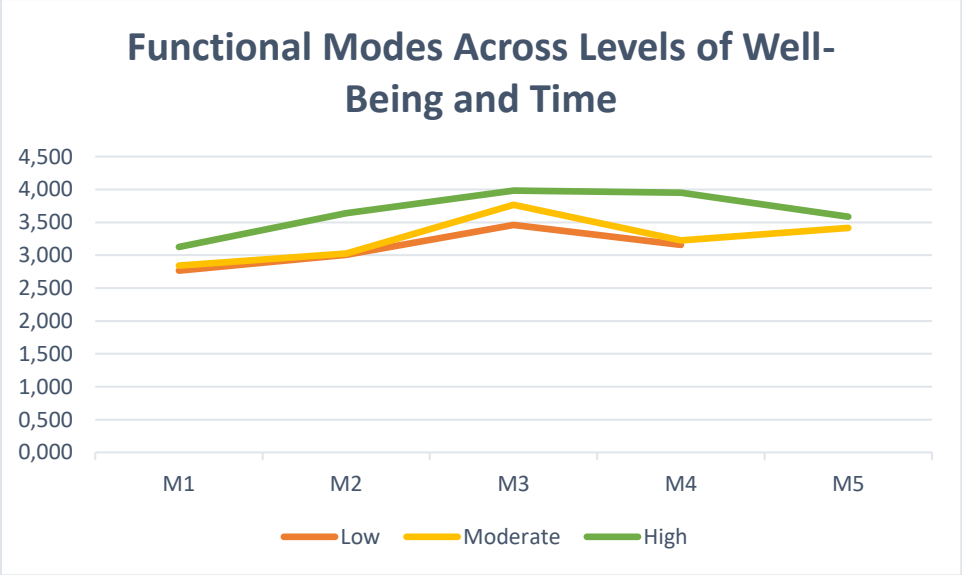

Figure B1. Functional Schema Modes Across Levels Well-Being and Time

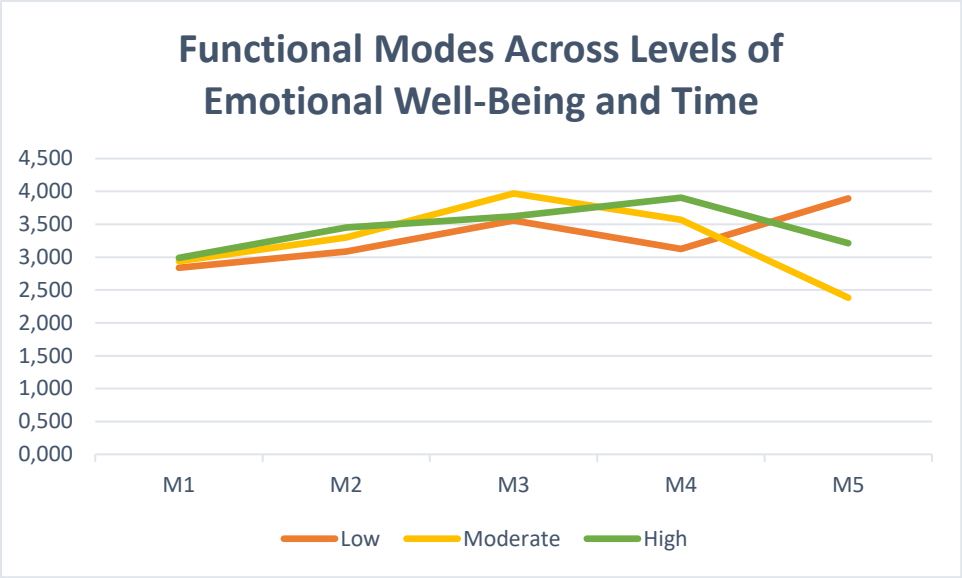

Figure B2. Functional Schema Modes Across Levels of Emotional Well-Being and Time

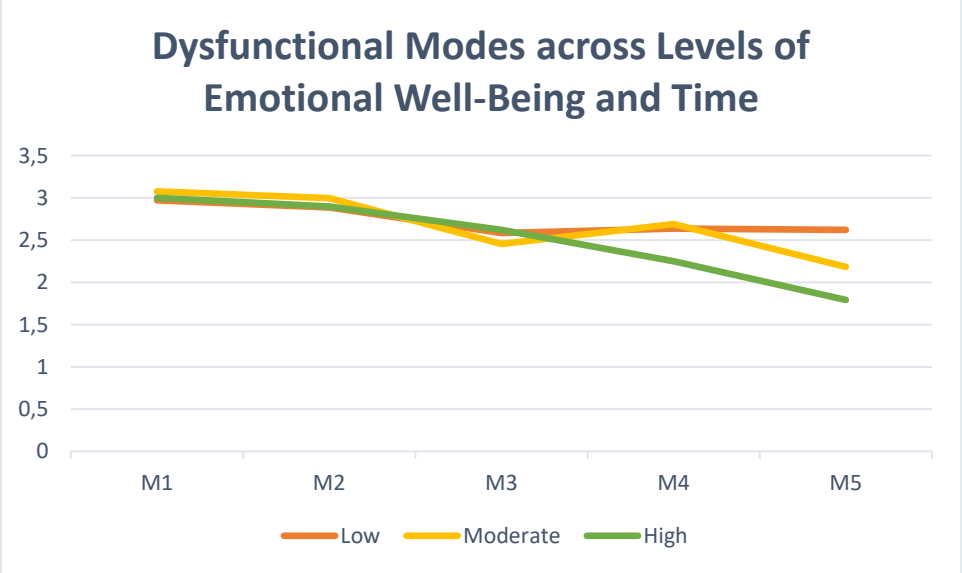

Figure B3. Dysfunctional Schema Modes Across Levels of Emotional Well-Being and Time

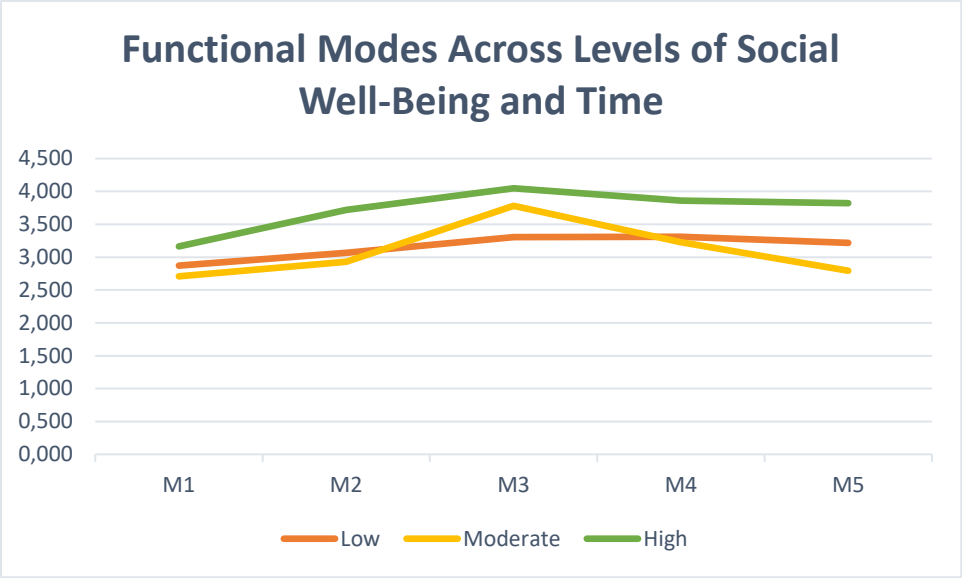

Figure B4. Functional Schema Modes Across Levels of Social Well-Being and Time

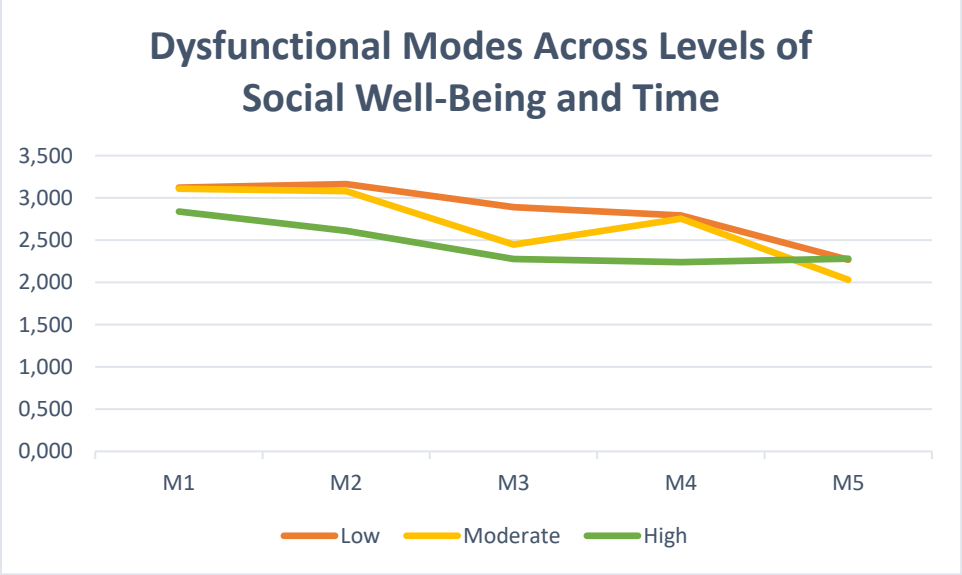

Figure B5. Dysfunctional Schema Modes Across Levels of Social Well-Being and Time

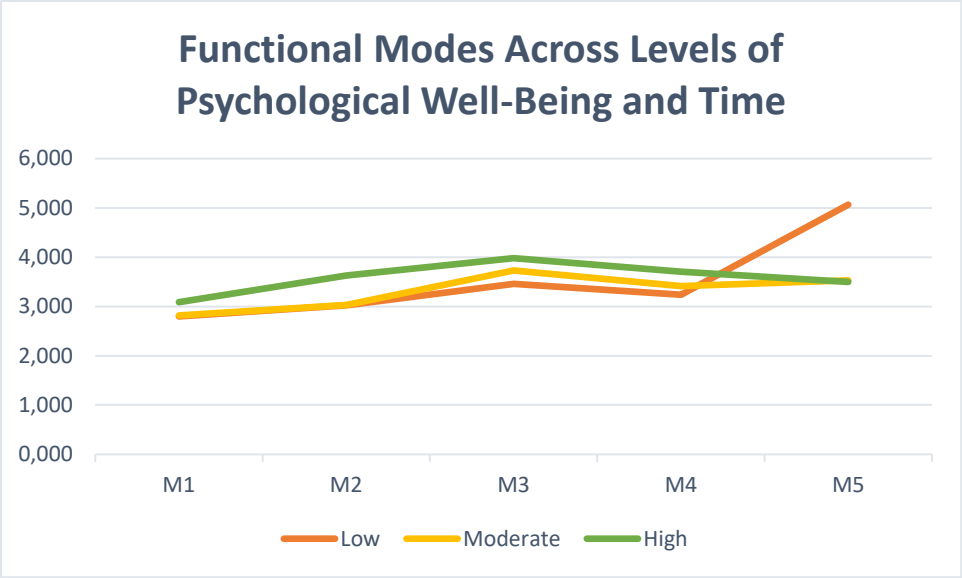

Figure B6. Functional Schema Modes Across Levels of Psychological Well-Being and Time

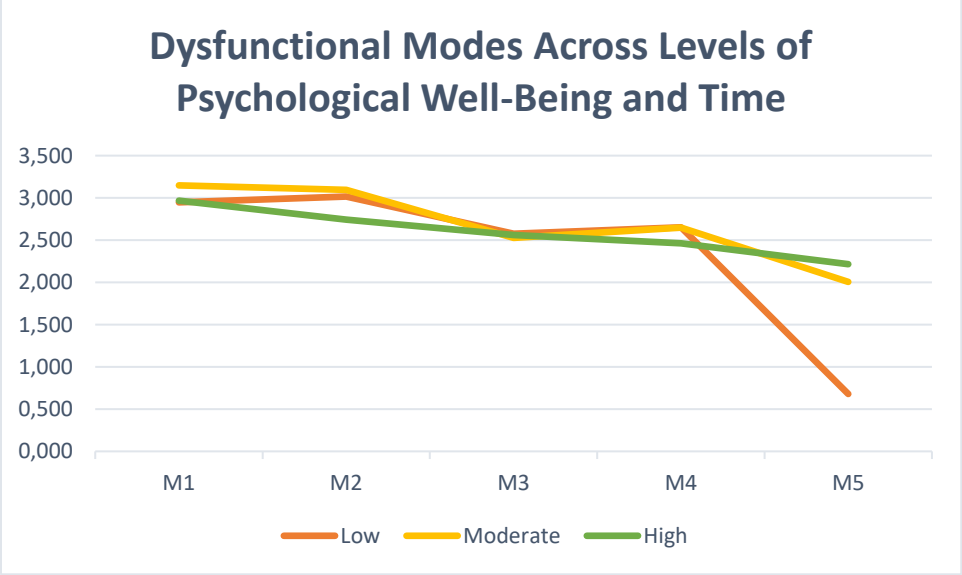

Figure B7. Dysfunctional Schema Modes Across Levels of Psychological Well-Being and Time

Appendix C: Well-Being and Baseline Well-Being

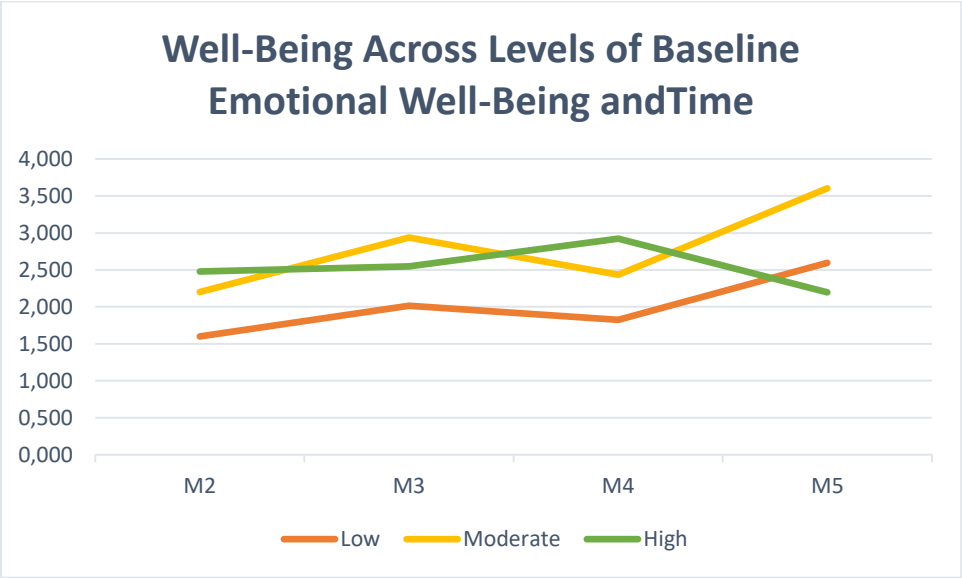

Figure C1. Well-Being Across Levels of Emotional Well-Being at Baseline and Time

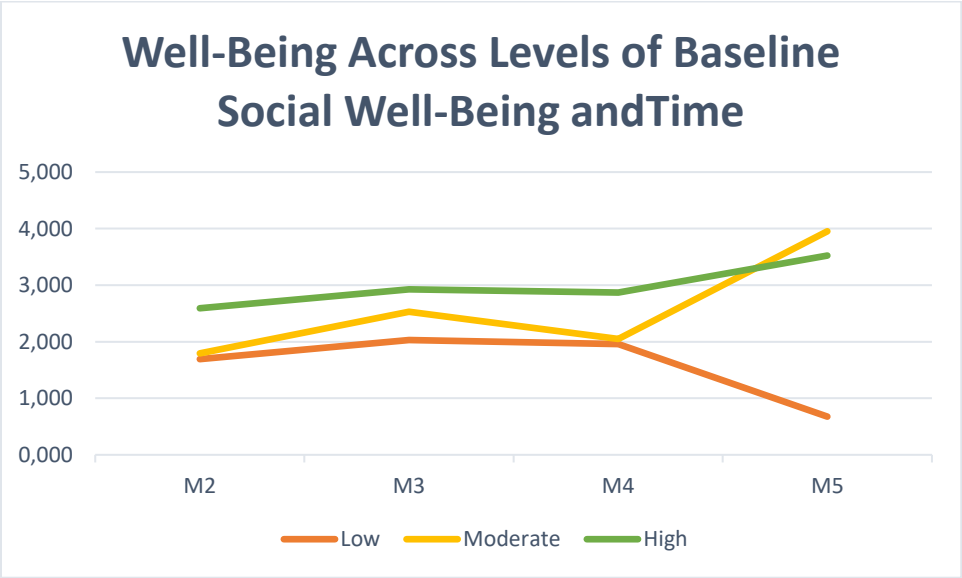

Figure C2. Well-Being Across Levels of Social Well-Being at Baseline and Time

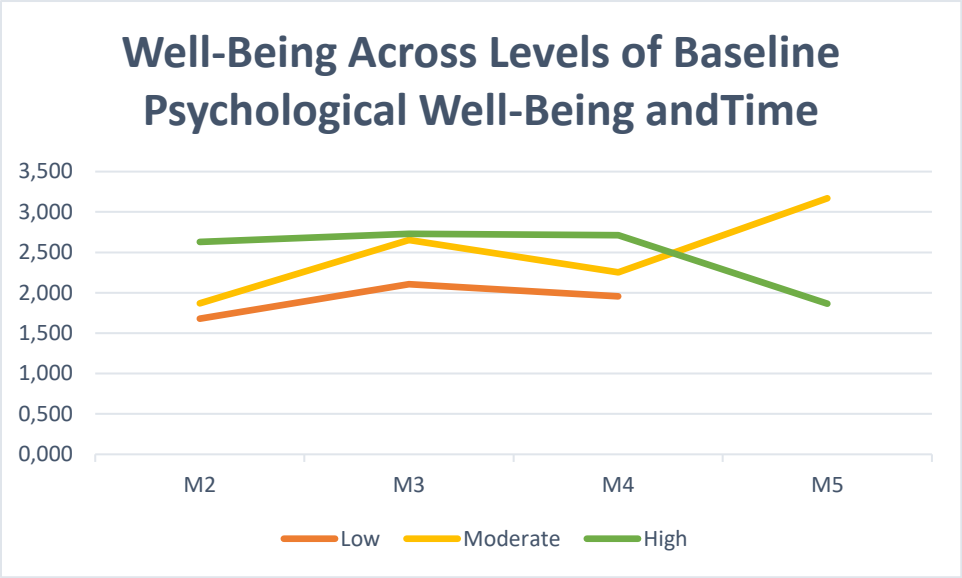

Figure C3. Well-Being Across Levels of Psychological Well-Being at Baseline and Time