

The Relation Between the Functional Schema Modes and Wellbeing at the End of Inpatient Schema Therapy and the Long-term Societal Functioning and Wellbeing for Individuals with Complex Personality Disorders

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Master thesis

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Abstract

Introduction Personality disorders (PDs) have a prevalence of 40-60 percent in the general population. PDs have great impact on personal and societal level. This entails high societal costs, which underlines the need for (cost-)effective treatment. Inpatient group Schema Therapy (ST) appeared to be well suited for individuals with complex PDs. However, the effectiveness of inpatient ST is currently mostly based on treatment outcomes. Longitudinal studies into societal functioning among individuals with a PD are lacking in the literature. Therefore, this study focusses on the following question: : *To what extent are wellbeing and functional schema modes measured at the end of an inpatient ST related to the societal functioning and positive mental wellbeing of individuals two to eight years after being treated for a complex PD?* Additionally, the influence of COVID-19 will be taken into account.

Method The sample consisted of 121 inpatients of De Boerhaven Mediant, an expertise center for personality disorders. A naturalistic and explorative within-subject design was used. Measurements took place at the end of treatment and 2-8 years after the end of treatment (long-term follow-up, LFU). The Schema Mode Inventory (SMI) was conducted to measure the functional modes and the Mental Health Continuum Short Form (MHC-SF) was used to measure the positive mental health and the emotional, social and psychological wellbeing. At the LFU information was collected regarding the work status and living situation. Descriptive analyses, paired samples t-tests, independent samples t-tests, binary logistic regression, and multiple linear regression analysis were used to answer the research questions.

Results The treatment outcomes measured at the end of treatment were found to be not related to the work status measured at LFU. The psychological wellbeing measured at the end of treatment was found to be related to a cohabiting living situation measured at LFU. The functional modes at the end of treatment were found to be related with the positive mental wellbeing at LFU. However, for individuals who filled out the LFU during the COVID-19 pandemic, not the functional modes but the social wellbeing were related to the positive mental wellbeing.

Conclusion Psychological wellbeing and functional modes are found to be important factors for the societal functioning and positive mental wellbeing at long-term follow-up. When taking contextual factors of COVID-19 into account, social wellbeing at the end of treatment seems to be important for the experienced mental wellbeing at long-term follow-up. An explicit focus on these two forms of wellbeing is suggested to improve the (cost-) effectiveness of inpatient group ST.

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Introduction

Personality disorders (PDs) are common disorders in the general population (Verheul, 2003), which often cause great impairment on the level of societal functioning and positive mental wellbeing. These disorders are characterized by long-term, inflexible patterns of behaviour and inner experiences that differ significantly from what is expected within the culture (American Psychiatric Association, 2014). The great burden of these disorders emphasizes the need for (cost-)effective treatments, even more for complex PDs. One specific treatment that has been shown to be effective for complex PDs, is inpatient group Schema Therapy (ST). Little is known about the long-term effects of inpatient group ST on the societal functioning and positive mental wellbeing on the long-term. Therefore, this study focusses on the relationship between the treatment outcomes and long-term societal functioning and positive mental wellbeing after an inpatient group ST.

The prevalence of PDs in the Dutch population is estimated at 5-10% (GGZ Standaarden, 2017). In the mental healthcare, this prevalence is even 40-60% (Soeteman et al., 2008b; GGZ Standaarden, 2017; Zimmerman et al., 2005, Zimmerman et al., 2008). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) clusters Personality disorders in three types (American Psychiatric Association, 2014). Cluster A is characterized by odd, eccentric thinking or behaviour and include paranoid, schizoid, and schizotypal PDs. Cluster B refers to dramatic, overly emotional or unpredictable thinking or behaviour, belonging to borderline, histrionic, and narcissistic PDs. Lastly, cluster C consists of PDs like avoidant, dependent, and obsessive-compulsive which are characterized by anxious and fearful thinking or behaviour (American Psychiatric Association, 2014). Among individuals with a PD, 40-80% have a comorbid disorder like mood and anxiety disorders, substance use disorders, and post-traumatic stress disorders (Davey, 2014; Samuels, 2011). PDs lead to high annual societal costs in different areas.

Personality Disorders and Societal Costs

The estimated annual societal costs in the Netherlands per individual with a PD amount to more than 11.000 euros on average (Soeteman et al., 2008a). The direct medical costs amount to 7400 euros and the indirect costs, due to productivity losses (absenteeism and inefficiency at work) are on average around 3700 euros (1/3 of the total costs). For individuals with a PD with a paying job, these indirect costs are on average 7000 euros per year. A study of Gustavsson et al. (2011) found that even 78% of the total costs were related to productivity loss and absenteeism. In the aforementioned studies, solely individuals with PD as a main diagnosis are included. Additionally, consequences due to neglect, maltreatment, and abuse in

families are not included in these costs, which indicates even an underreporting of the costs (Soeteman et al., 2008b). However, the economic burden of PDs is estimated to be at least equivalent to and probably higher than that of other mental disorders such as depression, schizophrenia or a generalized anxiety disorder based on international studies (Rössler et al., 2005; Luppá et al., 2007; Hoffman et al., 2008). These high costs arise from the personal and societal impairments in functioning of individuals with a PD.

Societal Functioning and Burden of Disease of Personality Disorder

PDs have great impact on interpersonal functioning, which constitutes a major criterion of the general PD definition in DSM-5 (American Psychiatric Association, 2014). For instance, personality disorders are characterized by unusual ways of interpreting events, unpredictable mood swings or impulsive behaviour (Davey, 2014). This impairment in functioning often occurs in domestic area and in occupational areas.

A recent study among an inpatient population of individuals with an avoidant personality disorder, shows that 67% of the participants live alone before the start of their inpatient psychotherapy (Kvarstein et al., 2021). This study does not report the percentage of participants living alone after the inpatient treatment. However, they did find that the living status (living alone or being married/in a partnership/cohabiting) did not explain baseline variance, indicating that the living status does not influence the differences in work and social adjustment measured at baseline. Whisman et al. (2007) found an association between PDs and a decreased probability of marriage, increased probability of early marriage, and marital disruption. Marriage is associated with positive social consequences as better health, less risky behaviour, lower mortality, and greater savings (for a review, see Waite & Gallagher, 2000). Early marriage and marital disruption are associated with adverse social consequences, such as lower socioeconomic resources (Teti et al., 1987) and lower levels of happiness and self-acceptance (for a review, see Amato, 2000). Additionally, domestic violence often occurs in the lives of individuals with a PD. A meta-analysis showed a positive relationship between intimate partner violence (IPV) and PDs (Collison & Lynam, 2021). Explanations of perpetration and victimization can be found in PD specific symptoms. For instance, ego-centrism and lack of empathy can play a role in perpetrators, while submission and difficulty expressing emotions and disagreement can contribute to become a victim (Collison & Lynam, 2021). These studies make it conceivable that cohabiting entails significant problems for individuals with a PD.

Additional to cohabiting related impairments, PDs are associated with impairment in occupational functioning (Hengartner et al., 2014; Lim et al., 2000; Skodol et al., 2008).

These impairments might also occur due to problems in interpersonal relations. These include relationships with co-workers, employers, and supervisors (Ettner et al., 2011). However, PD symptoms may be both disadvantageous and advantageous in reaching occupational goals. For instance, emotional turbulences in borderline PD can be impeding to reach occupational goals, but the competitive nature of narcissistic PD can contribute to achieving success (Ettner et al., 2011). The average number of lost working days per year per working patient is 48, due to absence or inefficiency at work (Soeteman et al., 2008a). Unemployment is also a problem among individuals with PDs. Kvarstein et al. (2021) conducted a study among 460 participants with an avoidant PD. They found that 53% of the participants did not had a job or study in the past 12 months at baseline. Mehlum et al. (1991) also found that approximately 45% of individuals with borderline PD ($N = 26$) and 47% of the remaining cluster C PDs ($N = 15$) seem to remain unemployed two to five years after treatment. However, these sample sizes are relatively low. Gunderson et al. (2012) found that after ten years, merely one-third of the individuals with borderline PD ($n=175$) was fully employed (work or school). These studies underline the occupational impairments for individuals with a PD.

After the aforementioned impairments, it will be no surprise that the wellbeing of individuals with a PD is low. The two continua model describes wellbeing as an important part of being mentally healthy (Westerhof & Keyes, 2009). This model explains two different continua in mental health: mental illness and positive mental wellbeing. According to this model, mental illness and positive mental wellbeing are two related but distinct dimensions. Therefore, it seems important to focus not solely on symptoms, but also on wellbeing in the mental health of individuals with a PD. Westerhof and Keyes (2009) describe positive mental wellbeing as a combination of emotional, psychological, and social wellbeing. Emotional wellbeing refers to happiness and satisfaction with life, psychological wellbeing refers to positive individual functioning in terms of self-realization, and social wellbeing refers to positive societal functioning and being of social value (Westerhof & Keyes, 2009). The wellbeing of individuals with a PD is found to be lower than for controls (Stanga et al., 2019). Furthermore, Franken et al. (2018) show that the wellbeing of individuals with a PD is lower than for the general population on average, with especially the social wellbeing being the lowest. Additionally, a study among individuals with major depressive disorder and co-occurring PDs ($N = 668$) showed that the existence of a PD added significantly to lower levels of wellbeing (Skodol et al., 2008). These functional and mental impairments emphasize the need for effective treatment.

Treatment of Personality Disorders

In the Netherlands, the preferred choice treatments for PDs are psychotherapeutic treatments (GGZ Standaarden, 2017). Most research is done for individuals with a borderline personality disorder and cluster C personality disorders. However, there are sufficient indications that psychotherapy also produces favourable treatment results in cluster A and the broader spectrum of cluster B disorders. There are several treatments proven to be effective for treating personality disorders. Examples are Dialectical Behaviour Therapy (DBT), Mentalization-Based Treatment (MBT) (Bateman & Fonagy, 1999), Transference Focused Psychotherapy (TFP) (Clarkin et al., 2007), Systems training for emotional predictability and problem solving (STEPPS) (Blum et al., 2008) and Schema Therapy (Giesen-Bloo et al., 2006). Leichsenring & Leibing (2003) found in a meta-analysis that psychodynamic therapy and cognitive behavioural therapy both seem to be effective treatments for personality disorders. However, from all the above treatment options, Schema Therapy is also found to be effective for specifically individuals with complex PDs (Jacob & Arntz, 2013; Young et al., 2003; Wolterink & Westerhof, 2018). Personality disorders are seen as complex when clients have not or insufficiently benefited from previous treatment, when there is a high level of suffering, there are comorbid disorders and there are problems in several areas of life (Wolterink & Westerhof, 2018). Besides this, when individuals with a PD do not sufficiently benefit from ambulant treatment, they are often referred to an inpatient treatment (Reiss et al., 2013). It is conceivable that individuals with complex PDs experience even more personal and societal impact, and therefore inpatient ST will be the focus of this study.

Schema Therapy

Schema Therapy (ST) is developed by Young et al. (1990). It has an intensive focus on problematic emotions, biographical aspects and the therapeutic relationship (Arntz & Jacob, 2020). A central aspect of ST is schema modes. Schema modes explain the frequent changes in clients' moods and behaviours (Young, 1990). They are formed by a combination of early experiences and beliefs, coping responses, and/or healthy functioning. The schema modes consist of dysfunctional child, coping and parent modes and functional modes (Arntz & Jacob, 2020). The dysfunctional modes have been developed when the basic needs in childhood are unmet (child modes), there is a need for protection against pain (coping modes) and a disapproving role model or parent has been internalised (parent modes) (Arntz & Jacob, 2020). The functional modes are called the Happy Child and the Healthy Adult. The Happy Child has the ability to be playful and spontaneous and in this mode, the individual feels met in their basic needs (Lobbestael et al., 2008; Wolterink & Westerhof, 2018). The Healthy

Adult refers to the ability to reflect adaptive thoughts, behaviours, and feelings (Lobbestael et al., 2008; Vreeswijk et al., 2008). It sets limits for the dysfunctional child modes, promotes the Happy Child, and combats, replaces and neutralizes the dysfunctional coping and parent modes (Martin & Young, 2010). In short, the functional modes consist of healthy ways of emotional expression, behaviour, and adaptation (Wolterink & Westerhof, 2018). ST aims to increase the presence of the functional modes and to decrease the presence of dysfunctional modes. ST therapy can be offered in individual setting and on group level, and in different intensity like ambulatory, partly inpatient, or in inpatient setting. As earlier described, this study focusses on the inpatient Schema Therapy (ST) as it is proven to be effective for complex personality disorders (Jacob & Arntz, 2013; Wolterink & Westerhof, 2018). Janzing & Kerstens (2012) describe an inpatient therapeutic environment as follows:

“a unit of cohesive treatment, in which relationships with other patients and practitioners are offered to a patient. These relationships offer the patient the space to come to a solution within his possibilities and limitations to his problems, problems that can vary in complexity and can lie in all kinds of areas of life”. (p. 89)

This definition seems to underline the importance of relations with others, which is an important factor in the treatment of complex PDs. In this study, the functional schema modes are seen as important, because the presence of these modes indicate a positive change in personality pathology and wellbeing (Phagoe et al., 2022). Subsequent, a positive change in personality pathology and wellbeing is expected to have a positive effect on societal functioning and positive mental wellbeing. Schaap et al. (2016) found that inpatient ST has a positive influence on personality pathology and symptoms. They specifically found that dysfunctional schema modes decrease, functional schema modes increase, symptoms decrease and wellbeing increases after ST. They also found a small, but still significant, relapse six months after treatment. However, Wächtler (2020) found in a long-term follow-up (two to eight years after treatment) of the same participant group, that the small relapse disappeared. Furthermore, wellbeing is found to have a large and stable change during the entire treatment (Phagoe, 2018). Reiss et al. (2014) found preliminary promising results in three uncontrolled pilot studies for the effectiveness of inpatient ST for individuals with a borderline PD. However, there is lack of knowledge about the long-term effects of inpatient ST on societal functioning and positive mental wellbeing.

Context of the Study

This study is conducted during the COVID-19 pandemic. Research shows that this pandemic has a great impact on wellbeing. For instance, O'Connor et al. (2021) found that the mental health of women, young people (18-29 years), of those from socially disadvantaged backgrounds, and of those with pre-existing mental health problems has been particularly affected during the pandemic. Additionally, studies about the effect of self-isolation and quarantine in previous virus outbreaks (e.g. H1N1, SARS) showed that this may lead to negative psychological effects (Brooks et al., 2020). Therefore, COVID-19 seems to be an important contextual factor to take into account.

Aim of the Study

The effectiveness of inpatient ST is currently mostly based on treatment outcomes. Although these are promising results, it is described that the societal functioning and positive mental wellbeing of individuals with a complex PD is impaired, which leads to high societal costs. This raises the question if these positive treatment outcomes of inpatient ST also has a positive impact on societal functioning and positive mental wellbeing on the long-term after treatment. Longitudinal studies into societal functioning among individuals with a PD are lacking in the literature. Therefore, this study focused on the societal functioning, consisting of work status and living situation, and positive mental wellbeing, because it appeared that impairment in these areas lead to high costs. There is a lack of knowledge about the relation between treatment outcomes and these factors. However, insight in these relationships may contribute to the (cost-)effectiveness of the inpatient ST. Additionally, the context of the COVID-19 pandemic seems to be important for the meaning of this study, and therefore will be taken into account. These subjects will be explored by the following research question: *To what extent are wellbeing and functional schema modes measured at the end of an inpatient ST related to the societal functioning and positive mental wellbeing of individuals two to eight years after being treated for a complex PD?* To investigate this research question, the following questions are formulated:

1. To what extent are the three components of wellbeing and functional schema modes measured at the end of treatment related to the work status of individuals with complex personality disorders measured two to eight years after treatment?
2. To what extent are the three components of wellbeing and functional schema modes measured at the end of treatment related to the living situation of individuals with complex personality disorders measured two to eight years after treatment?

3. To what extent are the three components of wellbeing and functional schema modes measured at the end of treatment related to the positive mental wellbeing of individuals with complex personality disorders measured two to eight years after treatment?
4. To what extent does the COVID-19 pandemic influence the relation between the three components of wellbeing and the functional modes measured at the end of treatment and the work status, living situation and positive mental wellbeing measured two to eight years after treatment?

Method

Design

This study had a naturalistic and explorative within-subject design. Data collection took place between 2012 and 2020 at five measurement moments: pre-treatment, intermediate (after six months of treatment), post-treatment, 6-month follow-up and long-term follow-up (LFU; two to eight years after the end of treatment). This study focused on the post-treatment and LFU data. The LFU data is a unique characteristic of this dataset, because it gives insight in the course of personality pathology long after the treatment ended. As an addition on the first four measurements, the LFU also included data collection on factors of societal functioning. The data used in this study is part of a larger study by Pietersen et al. (in preparation), which has been approved by the Ethics Committee of the Faculty of Behavioural Sciences at the University of Twente (request number 18883).

Setting

The data has been collected from clients of the inpatient ward of Mediant De Boerhaven, an expertise center for personality disorders formerly known as De Wieke. This inpatient ward offers inpatient group-psychotherapy based on Schema Therapy. The regular duration of the therapy is twelve months, but early completion or an extension of the program is possible if indicated by the treatment team and requested by the client. Clients stayed at the inpatient ward for five days and nights a week (Sunday evening to Friday afternoon) and went home during the weekends. The ward has room for 27 clients, who are divided into three treatment groups with a maximum of nine clients per group. In these subgroups, clients received psychotherapy, sociotherapy, drama therapy, art therapy, and psychomotor therapy. Furthermore, in the first eight weeks of treatment, clients received eight sessions of individual therapy with their main therapist to create a clear holistic theory about their personal situation and complaints. Besides this, clients were able to choose from several modules as an addition to their treatment, such as a trauma focused module, schema mode module, lifestyle module, and an aggression regulation module, which they followed in different subgroups. There was also a possibility to get pharmacotherapy by a psychiatrist. For more detailed information about the therapy given at De Boerhaven, see Wolterink and Westerhof (2018).

Participants

The participants were all clients of the inpatient ward of De Boerhaven. They were asked to participate in a long-during scientific research. Treatment admission criteria were an IQ higher than 80, no acute suicidality, and outpatient treatment proved unsuccessful. Most of the clients at De Boerhaven met the earlier described characteristics of a complex personality

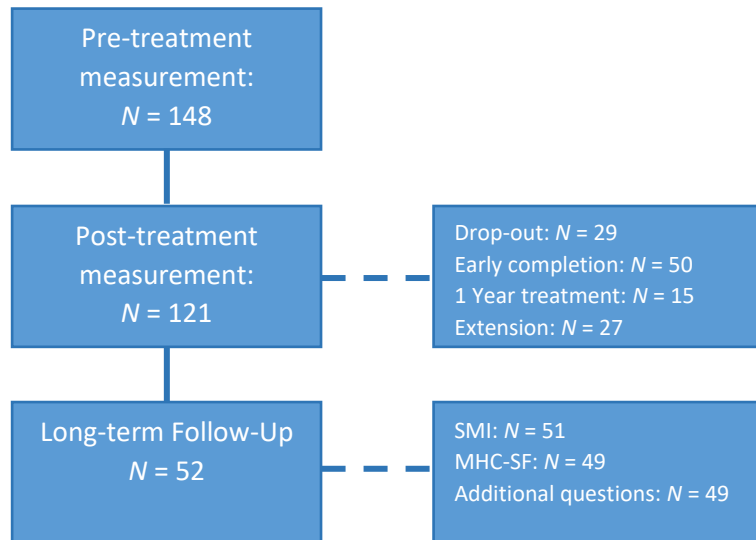
disorder. 148 clients agreed to participate in the study at the beginning of their treatment (pre-measurement) (see Figure 1). Of this starting sample, participants were invited every following measurement again to fill out the questionnaires, even if they did not participated in one or more of the former measurement moments. Therefore, the samples per measurement are not a smaller subset of the former measurement, but may have some overlap. This explains the occurrence of a larger sample size at a later measurement moment. The samples per measurement are: $N = 148$ pre-treatment, $N = 100$ intermediate, $N = 121$ post-treatment, $N = 107$ 6-month follow-up, $N = 55$ long-term follow-up.

An inclusion criteria for the LFU was a minimum of six months treatment (intermediate measurement), which resulted into 100 participants who were invited to participate in the LFU. Of them, 55 responded on the LFU. However, for the current study, the research question focused on the relation between the post-measurement and the LFU. For this, it is important to include participants who responded both on the post-measurement and the LFU. Therefore, the sample is selected as shown in Figure 1. Three participants of the LFU were excluded based on a missing post-measurement. Some t-tests were performed on only the post-treatment sample, for which 121 participants were included in the analyses. For the regression analyses, the sample consisted of 49 participants due to the sample size of the additional questions (see also *Data Analysis*).

The sample of 121 participants (post-treatment) consisted of men (24,8%) and women (75,2%). The average age was 26,60 ($SD = 6,44$). The average duration of treatment was 45,27 weeks ($SD = 15,92$). 76,0% completed their treatment ($n=92$) and 24,0% dropped-out ($n=29$). From the ones who completed the treatment, 15 completed this in one year, 27 had an extension and 50 completed the treatment early. The participants who dropped-out, were still asked to fill out the post- and LFU measurements. All dropped-out participants filled out the post-measurement and merely 7 of them filled out the LFU.

Figure 1

Sample Size Selection



Materials

For the data collection, two questionnaires and two additional questions regarding societal functioning were used. The Mental Health Continuum Short Form and the Schema Mode Inventory are both conducted at both the post-measurement and the LFU. The additional questions are only asked at the LFU. The questionnaires were all filled out online via the Routine Outcome Measurement (ROM).

Mental Health Continuum – Short Form (MHC-SF)

The MHC-SF is a 14-item self-report questionnaire which measures positive mental wellbeing, divided into emotional, psychological, and social wellbeing (Keyes, 2005). The MHC-SF is developed by Lamers et al. (2011). The items refer to experiences in the past month, which can be answered on a six-point Likertscale varying from ‘never’ to ‘every day’ (Lamers et al., 2011). Example items are ‘How often did you feel that you were satisfied?’ (emotional wellbeing), ‘How often did you feel that you understand how the society works?’ (social wellbeing), and ‘How often did you feel that your life has a direction or meaning?’ (psychological wellbeing). The MHC-SF is used for this study to measure the experience of wellbeing. Lamers et al. (2011) show that the MHC-SF has good convergent and discriminant validity, high internal reliability (Cronbach’s $\alpha = 0.89$) and moderate test-retest reliability.

Schema Mode Inventory (SMI)

The SMI is a self-report questionnaire to measure the presence of schema modes in individuals with a personality disorder. This questionnaire is developed by Young et al. (2008) and consists of 124 items aimed to measure 14 different modes. The schema modes

measured with this questionnaire are shown in Table 1 in Appendix A. In this study, merely the functional modes have been used, namely the Health Adult and the Happy Child modes. These modes were measured with items like *'I feel loved and accepted'* which can be answered on a six-point Likertscale from 'never or almost never' to 'always'. For this study, the sum of the scores on these modes are used, for the total of Functional Modes. This is also done by research of Wolterink & Westerhof (2018). The Cronbach's α of the functional modes as a sum of the Healthy Adults and the Happy Child in the current study is .85. The total SMI was found to have acceptable internal consistencies of the 14 subscales (Cronbach's α 's from .79 to .96), adequate test-retest reliability, and moderate construct validity (Lobbestael et al., 2010).

Societal Functioning

For the LFU, there are a two additional questions asked besides the questionnaires. These questions are formulated to gain insight in the societal functioning of the clients two to eight years after they ended their treatment. The questions match the important subjects of societal functioning, and are presented in Table 1. For the data-analyses, the answer categories of these questions are summarized, as presented in the last column of the table. The answer category 'working/studying' contains all initial answers indicating that a participant is able to perform any working or studying activity (see italics in Table 1).

Table 1

Additional Questions

Questions	Answers	Summary of Answers
What is your living situation?	- living alone - living with partner - living with partner and children - other; ...	- alone - cohabiting
Wat is your most important activity of the day?	- <i>paid job in salaried employment</i> - <i>voluntary work</i> - <i>school / education</i> - <i>independent professional / freelancer</i> - <i>looking for first job</i> - <i>taking care of household</i> - (partly) incapacitated	- <i>working/studying</i> - exempt from job search

- exempt from job search
 - getting a benefit
 - other; ...
-

Procedure

At the start of a treatment, clients are asked to fill out several questionnaires as a baseline measure as part of their treatment. In this meeting, they are asked to participate in scientific research. They received verbal information about the research, an information folder and are asked to fill in an informed consent to give permission to use their data anonymously in the research. The research uses data from the same questionnaires clients are already asked to fill in before, during, and after their treatment to keep track of their personal process. In this way, clients did not had to invest extra time. Solely the follow-up measure contains additional questions to the standard questionnaires of the treatment. For all measures, clients filled out several questionnaires. For the pre-measurement, these questionnaires will be a combination of paper-and-pencil and online so there is room for questions, observations, and explanations. For further measurements all questionnaires has been filled out online. After every measurement moment, the results have been reported in a psychological report and they have been verbally explained by the psychology interns of the clinic. The post-measurement is seen as the outcome of the treatment, and took place in the last weeks of the treatment. After finishing their treatment at the clinic, clients have been approached to fill out the six-month follow-up and the LFU (two to eight years after treatment). For these measurements, they filled out an additional informed consent. The results of the six-month follow-up and the LFU are conducted fully online and have been explained in a written report and if preferred via a verbal outcome conversation, which took place face-to-face, via video call or by phone.

Data Analysis

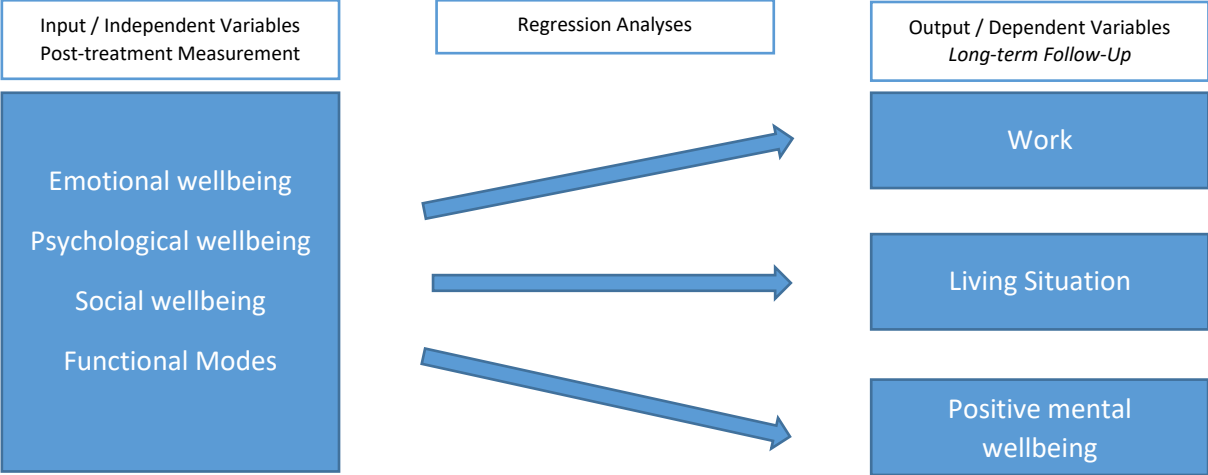
The collected data has been structured in a coherent dataset using IBM Statistical Program for Social Sciences (SPSS, version 21). First, descriptive analysis has been performed to obtain insight into the distribution of the data. The change of the different variables is shown in tables and figures. Second, it is tested if there is a difference between the participants who filled in the LFU and who did not, by using an independent-samples t-test to investigate if the means of the group differ significantly. Third, it is tested if there is a difference in the LFU data among participants who responded before or during COVID-19, via an independent-samples t-test.

Furthermore, it has been determined whether the treatment outcomes have a relation with the factors of societal functioning. Therefore, a binary logistic regression and a multiple linear regression have been used. The binary logistic regression has been run two times for the binary dependent variables of societal functioning, namely for work and living situation. The dependent variable of positive mental wellbeing was used in a linear analysis. The independent variables consist of the three components of positive mental wellbeing and the functional modes, which are all continuous variables. An advance of binary logistic regression above linear regression, is that binary logistic regression does not require a linear relationship between the dependent and independent variables, homoscedasticity and normally distributed error terms (Leung, 2021). However, there are still some assumptions that needs to be met. The assumption of linearity between the log-odds and the independent continuous variables is met, investigated via a Box-Tidwell transformation. This is done by adding log-transformed interaction terms between the continuous independent variables and their corresponding natural log into the model (Leung, 2021). The assumption of the absence of strongly influential outliers is also met, checked via Mahalanobis distance. Additionally, there is no high multicollinearity in the data. This is checked via Variance Inflation Factor (VIF), where the VIF must not exceed a value of 5 (or $R^2 < .80$) (Sheather, 2009; Menard, 2011). The outcomes of the analysis for checking the assumptions are presented in Appendix A.

The multiple linear regression analysis has been used to assess the relation between the treatment outcomes and the dependent variable positive mental wellbeing. Positive mental wellbeing is a continuous variable and therefore not fitting the binary logistic regression. There are several assumptions which need to be met for using a multiple linear regression analysis. The first assumption is that the dependent variable follows a normal distribution. This assumption is met, based on the non-significant results of both the Shapiro-Wilk and Kolmogorov-Smirnov normality tests. Furthermore, the relationship between the independent and the dependent variables must be linear. This assumption is checked with a probability plot, which showed that the plot does not perfectly follow the normality line, but there are no drastic deviations, so this is seen as acceptable for the linear relationship. As already analysed for the binary logistic regression, there is no multicollinearity in the data. Also here, there are no outliers in the variables, checked with the Cook's Distance. Lastly, the assumption of absence of homoscedasticity is met, checked via the residual plot. All these assumption analyses are also presented in Appendix B. Figure 2 shows the visual representation of the variables and regression analyses.

Figure 2

Visual Representation of Analyses



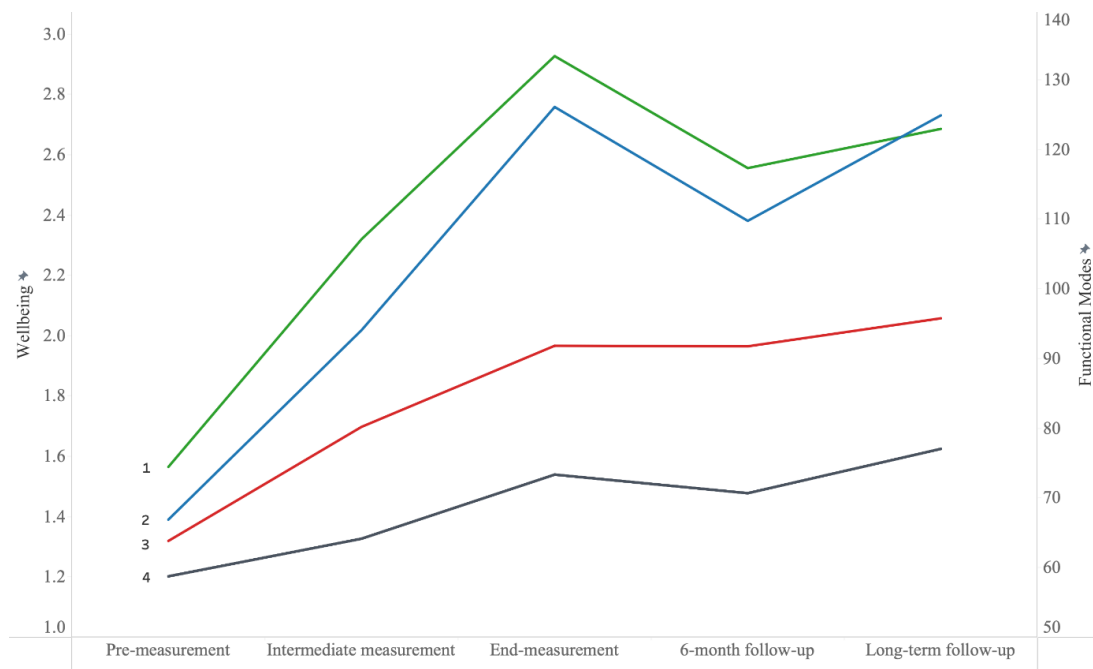
Results

Descriptive Analyses

To give an overview of the mean scores of wellbeing and functional modes per measurement point, Figure 3 shows the course of change. It shows that the group mean of the three components of wellbeing and functional modes is low at the start of the treatment. During the treatment both the three components of wellbeing and the functional modes increase. There is a small relapse at the 6-month follow-up, after which there is an increase at LFU. The line graph uses the data of the entire dataset (n=148) and not only participants of the post-measurement and the LFU.

Figure 3

Change of the three Components of Wellbeing and Functional Modes in Group Mean Scores



Note. 1 = Psychological Wellbeing, 2 = Emotional Wellbeing, 3 = Social Wellbeing, 4 = Functional Modes

The mean scores are shown in Table 2. On the three components of positive mental wellbeing at post-measurement, the highest mean score was found on psychological wellbeing ($M = 2.94$, $Sd = 1.15$). The highest score on the LFU for these components of wellbeing was found on emotional wellbeing ($M = 2.95$, $Sd = 1.26$). The mean score on functional modes is significantly improved between the post-measurement and the LFU ($t(47) = 2.306$, $p = .026$). The differences between the post-measurement and the LFU for positive mental wellbeing

and the three components of wellbeing are not significant (positive mental wellbeing: $t(44) = 0.629, p = .532$; emotional wellbeing: $t(44) = 0.863, p = .393$; psychological wellbeing: $t(44) = -0.214, p = .831$; social wellbeing: $t(44) = 1.487, p = .144$).

Table 2

Descriptive Statistics of Variables per Measurement Moment

	Post-treatment Measurement		Long-term Follow-up		Difference
	Mean	Sd	Mean	Sd	
Positive mental wellbeing	2.55	1.11	2.66	1.07	0.11
Emotional wellbeing	2.76	1.28	2.94	1.26	0.18
Psychological wellbeing	2.94	1.15	2.90	1.09	-0.04
Social wellbeing	1.96	1.15	2.21	1.17	0.25
Functional Modes	74.19	15.43	79.31	18.65	5.12*

Note. * Difference is significant at $p < .05$.

$N = 45$ for the components of wellbeing. $N = 48$ for the functional modes

Table 3 presents the distribution of Work by Living Situation, with the percentual values computed over the living situation (rows). It shows that there is no significant difference ($\chi^2(1), N = 49) = 0, p = 1$) in work status between participants with an Alone or Cohabiting living situation. In other words, of all participants who are living alone ($N = 21$) or who are cohabiting ($N = 28$), an equal percentage has no work (28.6%). Coincidentally, the distribution within the Work variable is equal between the two living situations.

Table 3

Distribution of Work by Living Situation Among Participants of the LFU (N=49)

Living Situation	Work		Total
	No	Yes	
Alone	6 (28.6%)	15 (71.4%)	21 (100%)
Cohabiting	8 (28.6%)	20 (71.4%)	28 (100%)

Table 4 presents the reversed situation of Table 3, showing the distribution of Living Situation by Work with the percentual values computed over the work status (rows). Again, there is no significant difference ($\chi^2(1), N = 49) = 0, p = 1$) in living situation for each of the

binary work categories (yes/no). For all participants who are not working ($N = 14$) or who are working ($N = 35$), an equal percentage lives alone (42.9%). Interestingly, now the living situation distribution is equivalent for both work categories. In conclusion, work status and living situation appear to be independent of each other, and 71.4% of the sample has a job two to eight years after treatment, and 57.1% is cohabiting.

Table 4

Distribution of Living Situation by Work Among Participants of the LFU (N=49)

		Living Situation		Total
		Alone	Cohabiting	
Work	No	6 (42.9%)	8 (57.1%)	14 (100%)
	Yes	15 (42.9%)	20 (57.1%)	35 (100%)

Differences Between Groups

To analyse if there is a difference between the participants who responded on the LFU and the participants who did not respond, an independent sample t-test is performed with several independent variables. The means and standard deviations on these variables are presented in Table 5. There are two binary variables, namely Gender and Completed treatment. For Gender, a mean score closer to 1 than 2 shows a majority of women in the sample. For the Completed treatment, a mean score closer to 1 than 0 shows that the majority of the participants has completed their treatment.

Table 5

Group Differences Between Participants Responding on LFU and not Responding LFU

	LFU 'no' <i>M (SD)</i>	LFU 'yes' <i>M (SD)</i>	Difference
Gender (women = 1, men = 2)	1.22 (0.42)	1.27 (0.45)	0.05
Age (in years)	26.66 (6.59)	26.62 (6.31)	-0.04
Completed treatment (no = 0, yes = 1)	0.68 (0.47)	0.88 (0.33)	0.20*
Duration of treatment (weeks)	42.42 (16.83)	49.37 (13.83)	6.95*
Emotional Wellbeing post-treatment (score)	2.73 (1.24)	2.86 (1.20)	0.13
Social Wellbeing post-treatment (score)	1.95 (1.01)	2.03 (1.15)	0.08
Psychological Wellbeing post-treatment (score)	2.88 (1.20)	3.03 (1.06)	0.15
Functional modes post-treatment (score)	72.50 (14.72)	74.96 (15.01)	2.46

Note. * Difference is significant at $p < .05$

Based on the Independent sample t-test, participants who responded on the LFU had on average completed their treatment more often ($t(118) = -2.771, p = .006$), and had a longer duration of treatment from on average about seven weeks ($t(118) = -2.408, p = .018$). The differences on the other variables, are not significant (for $p > .05$) In other words, the outcome variables of the three components of wellbeing and the functional modes measured at the end of treatment, did not differ between the group who responded on the LFU and the group who did not respond on the LFU.

Furthermore, another independent sample t-test is performed to analyse the differences between participants who responded on the LFU measurement before the COVID-19 crisis, and participants who responded on the LFU measurement during the COVID-19 crisis (see Table 6). The variables in the table are measured on the LFU. As a cut-off point, a responding date of 15th of March 2020 is used, because on that date the first drastic measures were announced, like closure of public spaces/schools, working from home, and keeping distance (Rijksoverheid, n.d.). These analyses are computed over the entire LFU sample ($N = 52$).

Table 6

Group Differences on the LFU Between Participants Responding Before ($N = 20$) and During ($N = 32$) COVID-19

	Before 15-03-2020 <i>M (SD)</i>	After 15-03-2020 <i>M (SD)</i>	Difference
Positive mental wellbeing	2.84 (1.14)	2.23 (1.10)	0.62
Emotional Wellbeing	2.93 (1.38)	2.60 (1.31)	0.33
Social Wellbeing	2.52 (1.09)	1.77 (1.15)	0.75*
Psychological Wellbeing	3.07 (1.24)	2.45 (1.12)	0.62
Functional modes post-treatment	83.18 (17.68)	72.81(19.82)	10.37

Note. * Correlation is significant at $p < .05$

Based on the Independent sample t-test, participants who responded on the LFU before the COVID-19 crises had on average a higher social wellbeing of 0.75 points on a 6 point Likert-scale than participants who responded during the COVID-19 crisis ($t(50) = 2.335, p = .024$). The differences on the other variables measured on the LFU are not significant (positive mental wellbeing: $t(50) = 1.926, p = .060$, emotional wellbeing: $t(50) = 0.859, p = .394$, psychological wellbeing: $t(50) = 1.856, p = .069$, functional modes: $t(52) =$

1.972, $p = .054$). This means that there is no differences between the positive mental wellbeing, functional modes and the emotional and psychological wellbeing before and during COVID-19.

Treatment Outcomes and Work Status

Before running the binary logistic regression, the correlation coefficients of the independent variables with de dependent variable Work were computed. These correlations are presented in Table 7. As shown, the correlations are not significant. This leads to the expectation that the variables will not contribute to the model.

Table 7

Correlations of the Independent Variables of the Regression Model with the Dependent Variable Work

Independent Variable	r	p
Functional Modes	.24	.109
Emotional Wellbeing	.25	.102
Social Wellbeing	.23	.124
Psychological Wellbeing	.20	.191

Nevertheless, the binary logistic regression model was run to investigate the relation between the treatment outcomes measured at the end of treatment and the work status (if participants had a job/study or were exempted from searching a job) at the LFU. The following treatment outcomes were used: Emotional wellbeing, Psychological wellbeing, Social wellbeing, and Functional modes. The model does not seem to be a better fit on the data than a null-model ($\chi^2(4, 44) = 5.051, p = .282$). The results of the regression confirmed this, by indicating that none of the treatment outcome variables are related to the work status, as presented in Table 8. This also confirms the expectation based on the non-correlating independent variables with the dependent variable.

Table 8

Regression Model of Treatment Outcomes for Work Status

Independent Variable	Odds ratio	SE	Wald χ^2	p
Emotional wellbeing	1.494	0.596	0.45	.501
Psychological wellbeing	.338	0.900	1.45	.228
Social wellbeing	1.206	0.692	0.07	.786
Functional modes	1.083	0.067	1.44	.230

Treatment Outcomes and Living Situation

Before running the second binary logistic regression analysis, the correlations between the independent variables and the dependent variable Living Situation are computed. These are shown in Table 9. Only the psychological wellbeing is found to be significantly correlated with the dependent variable Living Situation.

Table 9

Correlations of the Independent Variables of the Regression Model with the Dependent Variable Living Situation

Independent Variable	r	p
Functional Modes	.11	.468
Emotional Wellbeing	.167	.273
Social Wellbeing	.107	.485
Psychological Wellbeing	.296	.048*

Note. * Correlation is significant at $p < .05$

A second binary logistic regression analysis is used to investigate the relation between the treatment outcomes measured at the end of treatment and the living situation measured at the LFU. The following treatment outcomes were used: Emotional wellbeing, Psychological wellbeing, Social wellbeing, and Functional modes. The model seems to be a better fit on the data than the null-model ($\chi^2(4, 44) = 12,386, p = .015$). The binary logistic regression found that the independent variable Psychological wellbeing contributed to the model, as presented in Table 10. If the psychological wellbeing at the end of treatment increases with 1 point, the probability of cohabiting at LFU increases by 18.404. The other variables had not significant contribution to the model.

Table 10

Regression Model of Treatment Outcomes for Living Situation

Independent Variable	Odds ratio	SE	Wald χ^2	<i>p</i>
Emotional wellbeing	.587	0.690	0.595	.44
Psychological wellbeing	18.404	1.019	8.164	.004*
Social wellbeing	.539	0.645	0.920	.338
Functional modes	.905	0.067	2.214	.137

Note. * Correlation is significant at $p < .05$

Treatment Outcomes as Predictors for Positive Mental Wellbeing

Before running a multiple linear regression analysis, the correlation between the treatment outcomes and the dependent variable Positive mental wellbeing was computed. These correlations are shown in Table 11. All variables are significantly correlated to the positive mental wellbeing at the LFU.

Table 11

Correlations of the Independent Variables of the Regression Model with the Dependent Variable Positive Mental Wellbeing

Independent Variable	<i>r</i>	<i>p</i>
Functional Modes	.509	<.001 *
Emotional Wellbeing	.354	.017*
Social Wellbeing	.489	.001 **
Psychological Wellbeing	.365	.014*

Note. * Correlation is significant at $p < .05$. ** Correlation is significant at $p < .01$

Lastly, a multiple linear regression analysis is performed to test if the treatment outcome variables are related to the positive mental wellbeing measured at LFU. The same variables are used as treatment outcomes: Emotional wellbeing, Psychological wellbeing, Social wellbeing, and Functional modes. The variables are stepwisely entered into the model. Solely the Functional modes seem to contribute significantly to the model, which resulted in a multiple correlation coefficient of .503 ($p = .001$), with an R^2 of .253. This indicates that the model explained 25,3% of the variance in the data. The Emotional wellbeing, Social wellbeing, and Psychological wellbeing measured at the end of treatment were found to be not

related to the experienced positive mental wellbeing measured at the LFU. The results of the regression are presented in Table 12.

Table 12

Regression Model of Treatment Outcomes for Positive Mental Wellbeing

	R	R ²	F	<i>p</i>	Unstandardized <i>B</i>	SE(β)	Standardized <i>B</i>
Model 1	.503	.253	14,188	.001	0.118	.694	
Functional modes					0.035	.009	.503*

Note. * Correlation is significant at $p < 0.05$

Dependent variable: Positive mental wellbeing LFU

Excluded variables: Emotional wellbeing, Psychological wellbeing, Social wellbeing post-treatment

Contextual Influence of COVID-19

Due to the significant difference in social wellbeing for participants who responded before COVID-19 and participants who responded during COVID-19, the three regression analyses are performed again with taking into account this difference between the groups.

The analyses runned for the participants who responded on the LFU before COVID-19, gave more or less the same results as for the entire group. However, the analyses runned for the participants who responded on the LFU during COVID-19, gave a different result for the multiple linear regression where the influence of treatment outcomes on positive mental wellbeing at LFU was tested. Table 13 shows the results of this analysis. Instead of a significant relation between the functional modes at the end of treatment and the positive mental wellbeing at LFU, this analysis showed a significant correlation between social wellbeing at the end of treatment and positive mental wellbeing at LFU ($R = .616, p = .001$). So, the more social wellbeing people experienced at the end of their treatment, the more Positive mental wellbeing people experienced during the COVID-19 pandemic. The model explained 38,2% of the variance in the data.

Table 13

Regression Model of Treatment Outcomes for Positive Mental Wellbeing for LFU Responds during Covid-19

	R	R ²	F	<i>p</i>	Unstandardized <i>B</i>	SE(β)	<i>B</i>
Model 1	.618	.382	14,850	.001	1.312	.332	
Social Wellbeing					0.616	.160	.618*

Note. * Correlation is significant at $p < 0.05$

Dependent variable: Positive mental wellbeing LFU

Excluded variables: Emotional wellbeing, Psychological wellbeing, Functional modes post-treatment

Discussion

The aim of this study is to give insight in the relation between treatment outcomes of an inpatient Group Schema Therapy (ST) and the societal functioning and positive mental wellbeing. The treatment outcomes used in this study are the functional modes, emotional wellbeing, psychological wellbeing, and social wellbeing. Societal functioning was composed of work status and living situation, and was measured, together with the positive mental wellbeing, two to eight years after an inpatient ST (long-term follow-up, LFU).

The first research question focused on the relation between the treatment outcomes measured at the end of the treatment and the work status measured at the LFU. It is found that the treatment outcomes (three components of wellbeing and the functional modes) are not related to the work status at LFU. The second research question focused on the relation between the treatment outcomes measured at the end of the treatment and the living situations measured at the LFU. It is found that the psychological wellbeing at the end of treatment is related to a cohabiting living situation. Finally, the third research question focused on the relation between treatment outcomes measured at the end of the treatment and the positive mental wellbeing at LFU. It is found that a higher score on functional modes at the end of treatment is related to a higher level of positive mental wellbeing 2-8 years after treatment. However, for participants who responded on the LFU during COVID-19, the social wellbeing was found to be related to the positive mental wellbeing instead of the functional modes. Experiencing more social wellbeing at the end of the treatment appears to result in experiencing more positive mental wellbeing during COVID-19. Besides that, a higher level of functional modes at the end of treatment appears to be not related to a higher positive mental wellbeing during COVID-19.

Work Status

The percentage of participants with a job or following a study at the LFU (approximately 70 percent), is higher compared to the findings within the literature review of Sansone & Sansone (2012). They showed that approximately 45 percent of the patients with borderline PD remained unemployed at the follow-up. This review included articles that differ in their measurement of the work variable and the intensity of treatment/support. It included articles with samples of patients who were hospitalized, who followed day treatment or who followed ambulatory treatment as an outpatient. However, the type of treatment in these articles is unknown. Additionally, the sample of the current study consists of a heterogeneous group of personality disorders, instead of only individuals with a borderline PD. These differences complicate the comparability. Perhaps individuals with a borderline PD (samples

in the review of Sansone & Sansone, 2012) experience more difficulty in finding and maintaining a job than individuals with other PDs, who are present in the sample of the current study. Another explanation can be that the intensity of inpatient treatment in the current study may lead to more sustainable improvements which may help to find and maintain a job later in life.

The regression analysis showed that treatment outcomes are not related to the work status. The offered therapy in the current study is long-term psychodynamic psychotherapy. Knekt et al. (2016) found in a 5-year follow-up that long-term psychodynamic psychotherapy is more effective in improving the work ability of individuals with PDs than short-term psychodynamic psychotherapy. Although the current study does not consist of a baseline of the number of individuals working/studying, the aforementioned review of Sansone & Sansone (2012) shows that the percentage of individuals with a borderline PD that is working after less intensive therapy, is lower than the percentage in current study. Therefore, the findings of current study seem to be in line with the findings of Knekt et al. (2016). However, the current study does not include a baseline measurement and less intensive therapy is not the same as short-term therapy, so a good comparison is hard to make.

Furthermore, the findings of the current study are not in line with Bateman and Fonagy (2008), who found that the societal functioning of individuals with borderline PD remained impaired five years after a partly hospitalized mentalization based group treatment. They found that the Global Assessment Functioning (GAF) scores continue to indicate deficits five years after treatment, with some patients continuing to show moderate difficulties in social and occupational functioning. However, the GAF score is assessed by the therapist and does not differentiate between different areas of life (American Psychiatric Association, 1994). Furthermore, Bateman and Fonagy (2008) only included individuals with a Borderline PD and the offered therapy is Mentalization-based treatment. This indicates that the inpatient schema therapy offered in the current study, might lead to more promising results. However, further research is necessary to investigate the change in work status and a specific differentiation between disorders can give more meaning to the comparisons made.

Living Situation

Current study shows that about 60 percent of the participants were cohabiting at time of LFU. As already mentioned in the introduction, Kvarstein et al. (2021) found that 67 percent of the participants with an avoidant PD lived alone before the start of their inpatient psychotherapy, and thus 33 percent of their sample was cohabiting at baseline. Compared with their baseline, the outcome of the current study at LFU seems to be in line with Zanarini

et al. (2015), who found that recovered borderline patients were significantly more likely to marry or live with a partner for a sustained period of time. However, the study of Kvarstein et al. (2021) solely includes participants with an avoidant PD, and the current study does not differentiate between the several PDs. Furthermore, the study of Kvarstein et al. (2021) misses an after treatment measurement, and the current study misses a baseline measurement. Therefore it cannot be concluded that the percentage of participants cohabiting is an improvement in comparison with before the treatment. Nevertheless, the impairment in cohabiting is already emphasized in the introduction, and the percentages in this study at LFU indicates promising results.

The finding that psychological wellbeing measured at the end of treatment is found to be correlated with a cohabiting living situation is in line with research of Grundström et al. (2021), who found associations between relationship status and mental wellbeing. However, their research does not take into account the time aspect, so the direction of the relation is not known. It is conceivable that being in a relationship may increase your wellbeing. However, it is also possible that experiencing more psychological wellbeing has a positive effect on the ability of cohabiting with someone. Psychological wellbeing refers to positive individual functioning in terms of self-realization (Westerhof & Keyes, 2009). It contains self-acceptation, personal growth, having live goals, handling your surroundings, autonomy, and positive relations (Westerhof & Keyes, 2009). As pointed out in the introduction, cohabiting seems mostly influenced by impairments interpersonal contact. It is conceivable that being more content with yourself, your own capabilities, and your relations, can be beneficial in contact with others. For example, when feeling more content about yourself, cohabiting can be based on a more stable internal basis within the individual with a PD.

Positive Mental Wellbeing

The mean levels of positive mental wellbeing and the three components of wellbeing seem to be higher compared to the mean scores of a personality disorder sample (Franken et al., 2018). The finding that functional modes measured at the end of treatment are found to be predictive for the positive mental wellbeing measured at LFU, is in line with research of Phagoe (2018), where the functional modes appeared to be associated with positive mental wellbeing. Interestingly, when selecting participants who responded on the LFU during COVID-19, the social wellbeing was found to be related to the positive mental wellbeing instead of the functional modes. A possible explanation can be found in the nature of the variables. Functional modes are focused on the individual thinking patterns, feelings and behaviours. On the other hand, social wellbeing refers to optimal functioning in the society,

like experiencing social contribution and integration (Keyes, 1998). It consists of a positive attitude towards others and accepting others, believing in the positive development of society, the feeling of having a valuable contribution to society, understanding the society, being interested in the society and feeling as you are part of a community/group. COVID-19 is a contextual factor, having a huge impact on the society. O'Connor et al. (2021) found that mental health and wellbeing of adults in the UK appeared to be affected during the initial phase of the COVID-19 pandemic. In the Netherlands, these results are not always confirmed (Van den Heuvel, et al., 2021; Sociaal en Cultureel Planbureau, 2020). The findings of the current study suggests that having a more positive attitude towards society might be a protector in dealing with such a crisis. For example, it might be that thinking positively about society, about the actions taken by the government and believing that it is for the good, might be helpful in continuing to experience a high positive mental wellbeing. This is supported by the findings of Mead et al. (2021) that tragic optimism (optimism in the face of tragedy) appears to be a protector of wellbeing during the COVID-19 pandemic. The finding that the functional modes are not related to positive mental wellbeing anymore when the LFU was filled out during COVID-19, might be connected to the COVID-measures. Places to practice hobby's like sport facilities, cultural and creative facilities and social meeting places as restaurants were closed during parts of the pandemic. Therefore, it might have been more difficult to use the Happy Child mode to maintain high positive mental wellbeing. So, even if the Happy Child was high at the end measure, it might not has a positive influence on the wellbeing during a crisis like the COVID pandemic. This is supported by the finding of Mead et al (2021) that physical activity during the COVID-19 pandemic is a protector of wellbeing. This is also supported by the finding of the current study that the functional modes were related to the positive mental wellbeing when not taking the COVID-19 period into account. However, the current study did not investigate the influence of the Happy Child and the Healthy Adult as separate constructs on the long-term positive mental wellbeing so these separate influences are unknown.

Strengths and Limitations

As far as known, this study is one of the first studies that focused on the long-term effects of inpatient group ST on the societal functioning and positive mental wellbeing of individuals treated for a complex PD. A strength of this study is the longitudinal characteristic of the data, which makes it possible to investigate predictors or long-term relations of treatment outcomes on the long-term societal functioning and positive mental wellbeing, instead of a single measurement a few years after treatment. Additionally, besides participants

who completed their treatment, this study included also participants who dropped-out and who had an extended treatment, which matches the reality. However, it would be interesting to further investigate the differences of these groups. Limitations of this study refer to the distribution of the data. The presented findings for the work status might be influenced by the distribution of the binary variable work. This variable is highly imbalanced towards participants that have a job/study, representing approximately 70 percent of the LFU data. A random classification would normally result in a 50 percent accuracy, whereas classifying all participants in the current sample as employed, will result in an accuracy of 70 percent. Therefore, a natural classification bias exists towards the overrepresented answer: job/study, since this yields the highest accuracy. Any additional independent variables will need to provide enough power to improve the already 70 percent classification accuracy. This could potentially make the independent variables less powerful and therefore, less significant compared to a more balanced dataset. If the variable work was more balanced, than the influence of additional variables on the work status might have more impact in the model because there would be more information about individuals who do not have a job/study.

An additional limitation can be found in the sample size itself, rather than the distribution within the sample. The performed analysis solely includes the participants who filled out both the post-measurement and the LFU-measurement. Therefore, the sample size for the regression analysis contains approximately 42 percent (51 participants) of the initial sample size at post-measurement. A small sample size can lead to less statistical power, which increases the change of incorrectly rejecting the null hypothesis (Bush, 2015). However, the analyses did not show many significant results, which indicates that the sample size did not lead to incorrectly rejecting the null hypothesis too often.

Another limitation of this study is that the dataset lacks information about the non-responders of the LFU. These individuals might not have responded because of their low state of functioning at the time of the LFU, or perhaps because they are functioning on high level and therefore do not feel the urge to spend any time to their former treatment anymore. It is dangerous to draw conclusions based on the sample and generalizing it to the population of all individuals who has received inpatient ST for a PD, when there is such a huge part of non-responders (58%). Besides this, the findings of the current study show that the LFU-responders have more often completed their treatment and have received a longer duration of treatment. This is an important characteristic of the sample, and influences the generalizability of the results to the population.

Furthermore, the current study does not make the distinction between the Happy Child and the Healthy Adults. Both are related to healthy behaviour, which advocated the merge of the two scales. Based on the meaning of these modes, it is conceivable that the Healthy Adult is more important for having a job/study and for cohabiting than the Happy Child mode. As such, combining the scores on both functional modes might give a distorted result. The same conclusion is presented in the study of Yakin et al. (2020), where the Healthy Adult is found to predict the occupational functioning.

Furthermore, the dataset consists of a heterogeneous group of personality disorders, which makes it hard to differentiate between the treatment effects on a specific personality disorder. In addition, the societal functioning lacks a well-founded baseline measurement. As such, no bold conclusions can be drawn and no direct comparisons can be made with existing studies. Lastly, this study is conducted among a specific and fixed therapy setting, which prohibits from generalizing the results to the full population.

Implications for Further Research

As already mentioned, there are several remarks on the current study. For future research, it might be interesting to use a baseline measurement for the work status and the living situation to investigate the change in these factors. Furthermore, a more well-founded combination of societal functioning variables might increase the validity of the results, since merely work and living situation are not an exhaustive description of societal functioning. Besides this, a more balanced distribution of the work variable may give more insight into the relation of the treatment outcomes with work. Additionally, a distinction between the Happy Child and the Healthy Adults might give insight into the influences of the separate functional modes on societal functioning. A distinction between the different PDs in the sample can give insight into the PD-specific influences on societal functioning. This makes comparison of the findings with existing research more meaningful. Another interesting topic for further research would be the characteristics of non-responders of the LFU. Lastly, the results should be replicated with larger samples and in different inpatient settings.

Recommendations

This study indicates important contribution of functional modes, psychological wellbeing and social wellbeing on societal functioning and positive mental wellbeing on the long-term. This confirms the findings of Wolterink and Westerhof (2018) and Phagoë (2018) that the wellbeing of individuals with a complex personality disorder needs to be an important focus of treatment. The functional modes are already an important focus of the treatment, since the treatment is based on ST. The factors of wellbeing, however, do not have a

prominent place in the therapy. Improving the psychological wellbeing to increase the change of a cohabiting living situation can be done by focussing on the facets of psychological wellbeing, like Self-acceptance, Environmental mastery, Personal growth, Positive relations with others and purpose in life (Ryff & Keyes, 1995). A module can be created, focussing on these different subjects. During psychotherapy sessions, psychomotor therapy, drama therapy and art therapy, these subjects can be covered. For instance, specific goals for the present and the future can be set to create more purpose in life and in drama therapy individuals can learn to improve their relations. The questionnaire Ryff Scales of Psychological Well-Being (Ryff & Keyes, 1995) can be used to assess the changes on these facets, to adjust the therapy more specifically to personal needs.

Furthermore, improving the social wellbeing seems to give a protective value for societal crises situations like an impactful pandemic. A way to increase the social wellbeing is to offer a module during the therapy or the aftercare treatment group focussing on contributing to the society. Here, topics like (voluntary)work, following a study and joining sport facilities or starting a hobby can be discussed.

Conclusion

An explorative study has been conducted to give insight in the long-term effects of the treatment outcomes Emotional wellbeing, Social wellbeing, Psychological wellbeing and Functional modes of Schema Therapy on Societal functioning and Positive mental wellbeing of individuals with a complex personality disorder. The findings indicate positive long-term effects on societal functioning and positive mental wellbeing after an inpatient ST. This study found no relation between the treatment outcomes and the Work situation, found that psychological wellbeing at the end of treatment was related to the Living situation and that functional modes at the end of treatment were predictive for the positive mental wellbeing. If accounted for the COVID-19 period, it was found that social wellbeing instead of the functional modes was predictive for the positive mental wellbeing during the pandemic. Furthermore, the amount of PD individuals that was working or following a study and cohabiting at long-term follow up indicate promising results. This knowledge is important to improve the long-term benefits of inpatient group ST. The psychological wellbeing seems to be important for a cohabiting living situation and social wellbeing seems to be important for higher positive mental wellbeing during a pandemic, and therefore need explicit attention in the treatment.

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Appendices

Appendix A: Assumption Analysis for Binary Logistic Regression

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a trFM	,304	,406	,560	1	,454	1,355
trEWB	-2,525	2,308	1,197	1	,274	,080
trSWB	-2,721	1,560	3,041	1	,081	,066
trPWB	2,931	3,595	,665	1	,415	18,744
SMI_funcionelemodi.3	-1,479	2,128	,483	1	,487	,228
EmotioneelWB.3	5,314	4,378	1,473	1	,225	203,120
SociaalWB.3	4,885	2,604	3,520	1	,061	132,261
PsychologischWB.3	-8,170	7,550	1,171	1	,279	,000
Constant	16,016	25,439	,396	1	,529	9025159,864

a. Variable(s) entered on step 1: trFM, trEWB, trSWB, trPWB, SMI_funcionelemodi.3, EmotioneelWB.3, SociaalWB.3, PsychologischWB.3.

The transformed variables of the outcome variables are not significant ($p > .05$), indicating linearity between the log-odds and the independent continuous variables.

Influencing outliers are checked by the Mahalanobis Distance:

MAH_1	PrbabilityMD
16,33078	,00261
14,16648	,00678
13,46629	,00921
11,33232	,02307
9,49450	,04986
9,37254	,05243
8,42344	,07724
8,14974	,08624
8,04896	,08980
8,04738	,08986
7,69017	,10361

Based on the Mahalanobis distance the highest distance is not very large, and the probability analysis shows no values below .001, which indicates no influential outliers.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	41,658	1,976		21,087	,000		
	EmotioneelWB.3	3,637	1,122	,305	3,240	,002	,262	3,822
	PsychologischWB.3	6,049	1,331	,472	4,545	,000	,215	4,660
	SociaalWB.3	1,993	1,150	,146	1,733	,086	,328	3,045

a. Dependent Variable: SMI_funcionelemodi.3

The VIF values are lower than 5, so there is no high multicollinearity.

Appendix B: Assumption Analysis for Multiple Linear Regression

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PositieveGG.5	,136	39	,068	,944	39	,054

a. Lilliefors Significance Correction

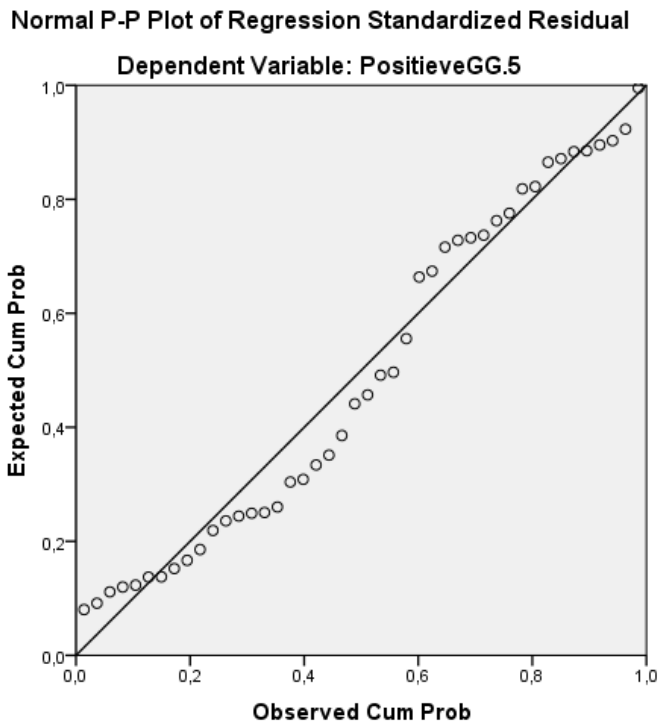
Normality tests show no significant difference from the normal distribution.

Residuals Statistics^a

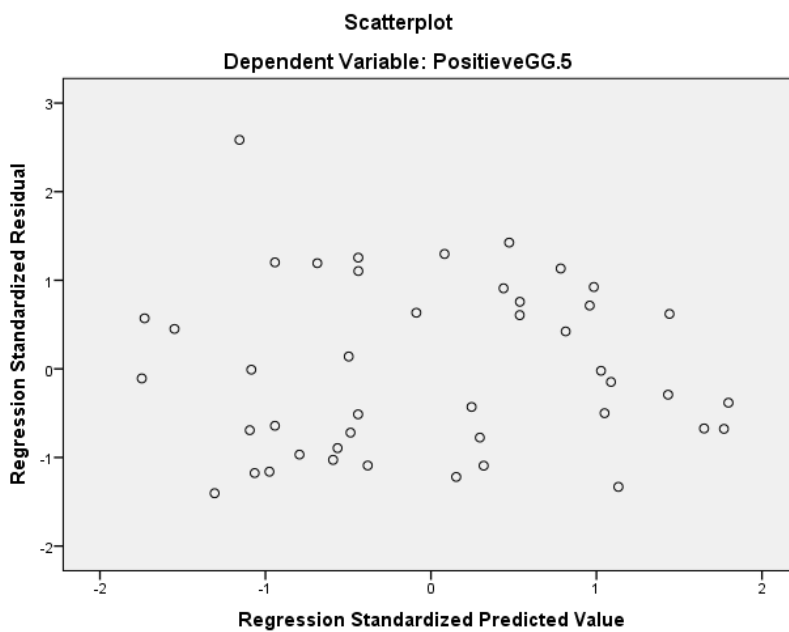
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1,6001	3,7844	2,6768	,61623	44
Std. Predicted Value	-1,747	1,797	,000	1,000	44
Standard Error of Predicted Value	,189	,496	,307	,062	44
Adjusted Predicted Value	1,5522	3,8463	2,6771	,62554	44
Residual	-1,30126	2,39602	,00000	,88303	44
Std. Residual	-1,403	2,584	,000	,952	44
Stud. Residual	-1,485	2,733	,000	1,008	44
Deleted Residual	-1,45690	2,68082	-,00027	,99137	44
Stud. Deleted Residual	-1,509	3,001	,006	1,030	44
Mahal. Distance	,814	11,332	3,909	1,997	44
<u>Cook's Distance</u>	,000	<u>,178</u>	,025	,030	44
Centered Leverage Value	,019	,264	,091	,046	44

a. Dependent Variable: PositieveGG.5

Cook's distance is not greater than 1, which indicates no influencing outliers.



The probability plot shows that there is no perfect plot following the line, but there are no drastic deviations.



There is no clear pattern in the scatterplot, which indicates no homoscedasticity.