The changes in symptoms of psychopathology and modes in inpatient schema therapy for patients with personality pathology

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Samenvatting

Introductie

Voorgaand onderzoek laat veelbelovende resultaten zien in het behandelen van persoonlijkheidsproblematiek met schematherapie. Modi, een focuspunt van schematherapie, en klachten lijken significant te dalen tijdens klinische behandeling. Eerdere onderzoeken laten ook een relatie tussen deze dalingen zien, maar hebben de specifieke klachten niet onderzocht. Het doel van dit onderzoek is daarom om inzicht te krijgen in een mogelijke relatie tussen het verschil in klachten en het verschil in modi.

Methode

De data wordt verzameld binnen Mediant kliniek De Boerhaven onder 148 participanten, tussen 2012 en 2020, tijdens vijf verschillende meetmomenten, door gebruik te maken van onder andere Brief Symptom Inventory en Schema Mode Inventory. Deze kliniek biedt een twaalf maanden durende klinische behandeling voor patiënten met persoonlijkheidsproblematiek. Er is een (complexe) multilevel analyse uitgevoerd in het programma IBM SPSS Statistics 21, om zowel de ontwikkeling in klachten, als een mogelijke relatie tussen die ontwikkeling en de ontwikkeling van modi te onderzoeken.

Resultaten

Alle categorieën klachten dalen significant tussen begin- en follow-up meting. De meerderheid van de categorieën dalen al tussen begin- en tussenmeting. De andere categorieën beginnen met dalen na de tussenmeting. Ten slotte, vier van de negen categorieën laten een stijging zien tussen de eind- en follow-up meting. Er is een relatie gevonden tussen de verandering in klachten en de verandering in modi. Er zijn verschillen tussen die categorieën.

Discussie

Resultaten van dit onderzoek komen deels overeen met resultaten van voorgaand onderzoek. Het verschil dat in dit onderzoek gemaakt is tussen de categorieën in klachten laten datzelfde resultaat zien. Het onderscheid dat gemaakt is tussen de verschillende schalen laat echter ook verschillende resultaten zien. Het vergelijken van de klachten met de modi kan dit mogelijk verklaren. Dit zal ook een aanbeveling zijn voor vervolgonderzoek, waarin mogelijk aanvullend een onderscheid kan worden gemaakt in de verschillende modi. Een aanbeveling voor de praktijk sluit aan bij de aanbeveling van Wolterink & Westerhof, betreffende de focus op modi in behandeling, maar kan mogelijk aangevuld worden door het toevoegen van psycho-educatie.

Abstract

Introduction

Previous research shows promising results about treating personality problems with schema therapy. Modes, a focus point of schema therapy, and symptoms significantly decrease during inpatient treatment. Previous researches also show a relation between these decreases, but did not research specific symptoms. The goal of this research is therefore to gain insight in a possible relation between the change in symptoms and the change in modes.

Method

In the current study, a naturalistic, prospective, within-subjects design was used. The data of 148 participants was collected at Mediant Kliniek De Boerhaven, between 2012 and 2020, at five different measurements, by using the Brief Symptom Inventory and the Schema Mode Inventory among others. Mediant offers a twelve months during inpatient treatment for patients with personality pathology. A (complex) multilevel analysis has been performed in the statistical program IBM SPSS Statistics 21, to analyse both the development of the different categories of symptoms of psychopathology and to research a possible relation between that development and the development of categories of modes.

Results

Every category of complaints decreases significantly between the pre-treatment measurement and the follow-up measurement. The majority of the categories already decrease significantly between the pre-treatment measurement and the intermediate measurement. The remaining categories start to decrease after the intermediate measurement. Lastly, four of nine categories show an increase between post-treatment measurement and follow-up measurement. There is a relation between the change in specific symptoms and the change in specific categories of modes. There are differences.

Discussion

Results of this research partly correspond with the results of previous research. However, the difference that is made here between the different categories of symptoms of psychopathology, does make a difference in results. This could possibly be explained by reviewing the different modes. That could also be a recommendation for future research, by gaining insight in the relation between categories of symptoms of psychopathology and the specific modes. A recommendation for clinical practice follows the recommendation that is done by Wolterink & Westerhof, in focusing treatment on modes. Then again, psycho-education as an addition to treatment, could also be helpful.

Content

Introduction

Personality disorders are associated with multiple negative consequences on short and long term, like problems in interpersonal relationships, emotional and behavioural difficulties, work-related problems and a low quality of life. The prevalence is high, with 4 to 15% in the general population, and 35 to 90% in the psychiatric population (Bamelis, 2016). For a long time, almost every professional that came across a patient with a personality disorder, believed that condition to be stable, persistent and that there was no ability to change (Tyrer, 2005). However, the last several years it became more and more clear that the symptoms of a personality disorder do not have to be permanent, and research keeps showing that there are different treatment methods that are effective (Verheul, 2007). The change in those symptoms, both symptoms of psychopathology as symptoms of personality disorders, is the focus of this research.

Where the DSM-IV divided ten personality disorders into three clusters, the DSM-5 remained to describe six: the antisocial personality disorder, the avoidant personality disorder, the borderline personality disorder, the narcissistic personality disorder, the obsessive-compulsive personality disorder and the schizotypal personality disorder (American Psychiatric Association, 2013; Davey, 2014). To come to a diagnosis, three discrete types of personality ratings contribute. The first is the level of personality functioning, which describes disturbances in self and interpersonal functioning, and the severity of impairment. The second category describes personality disorder trait domains, of which these domains are then specified into subtraits. Those ratings on both categories can then be used to come to a diagnosis in the third category, of which each personality disorder has its own diagnostic criteria (Davey, 2014). An overview of those domains and facets can be found in Table 1.

Table 1

Domains and facets of personality disorders

Domain	**Facets**
Negative affectivity	Emotional lability
	Anxiousness
	Separation insecurity
	Submissiveness
	Hostility
	Perseveration
	Depression
	Suspiciousness
	Restricted affectivity

Detachment	Withdrawal
	Intimacy avoidance
	Anhedonia
	Depression
	Restricted affectivity
	Suspiciousness
Antagonism	Manipulation
	Deceitfulness
	Grandiosity
	Attention seeking
	Callousness
	Hostility
Disinhibition	Irresponsibility
	Impulsivity
	Distractibility
	Risk taking
	Rigid perfectionism
Psychoticism	Unusual beliefs and experiences
	Eccentricity
	Cognitive and perceptual dysregulation

Note. Adjusted from *Psychopathology: research, assessment and treatment in clinical psychology*, by G. Davey, 2014, p. 412. Chichester: John Wiley & Sons.

For treating personality disorders, there are different treatment methods available. Outpatient individual psychotherapy, outpatient group psychotherapy or inpatient group psychotherapy can be chosen for treating personality disorders. All these methods are shown to be effective (Akwa GGZ, 2018). GGZ standaarden, that reviewed different researches and displays guidelines for the treatment of personality disorders in The Netherlands, explained that inpatient treatment should only be chosen when earlier treatment, for example outpatient treatment or inpatient treatment of a shorter period of time, was not effective. They also explained that personality disorders need a treatment with a high level, of which they say, the more appointments and the longer the treatment period, the higher the recovery percentage (Akwa GGZ, 2018). Multiple researches have shown outpatient individual therapy, based on different theoretical orientations, to be effective, and to lead to less drop-out rates (Leichsenring & Leibing, 2003; Perry et al., 1999; Svartberg et al., 2004; Piper et al., 1998; Winston et al., 1994). Effectivity of outpatient group psychotherapy is shown by research of Monsen et al. (1995), Budman et al. (1996) and Wilberg et al. (2003). Inpatient psychotherapy can be divided into two different aspects. One where patients have therapy for a minimum of two days a week, but where they stay elsewhere at night. The other possibility is where patients have therapy for at least three days a week, and where patients stay at the clinic in the evenings and during the night. The effectivity of the first possibility is shown by research of

Bateman & Fonagy (1999), Piper et al. (1993), Karterud (2003), Krawitz (1997), Wilberg et al. (1999) and Vaglum et al. (1990). Research of Chiesa et al. (2004), Dolan et al. (1997), Gabbard et al. (2000), and Stichting Klinische Psychotherapie (2001) has shown the second option to be effective.

After choosing the setting in which the treatment should take place, there are different treatment methods possible. Most research into which treatment method is most effective concerned the borderline personality disorder, cluster C personality disorders or personality disorders otherwise specified. Although, literature and clinical practice did show that there are positive treatment results for personality disorders in general, so also concerning other clusters (Akwa GGZ, 2017). Research then shows five different treatment methods to be the most effective options. The options are reviewed in no particular order. One option is Dialectic Behavioural Therapy, which is based on cognitive behavioural therapy, but combined with dialectical and Buddhist principles. Another option is Transference Focused Psychotherapy, which is focused on the problems that evolve in the therapeutic relationship, because the belief is that the problems that rise in daily life, also show up during therapy. Another option is Mentalisation-Based Treatment, which is more based on psychoanalytical and attachment-based theories. Another option is Systems Training for Emotional Predictability and Problem Solving, which is meant to help people regulate their emotions. Another is Schema Focused Therapy, which is an integrative psychotherapy in which different insights, methods and techniques are combined. Of those five options, four options seem to be either focused purely on the borderline personality disorder or emotion regulation, where Schema Focused Therapy seems to have the broadest focus (Akwa GGZ, 2017; Kenniscentrum Persoonlijkheidsstoornissen, n.d.).

Schema therapy is mostly effective for patients with chronic psychiatric disorders, for whom therapy was not fitting enough, or that is seen as hard to treat. Especially for patients with complex personality disorders, schema therapy seems to be effective (Young et al., 2005). It is an integrative and innovative therapy, and is developed by Young and colleagues (1990; 1999). Schema therapy draws on many concepts and methods, and has evolved to be a treatment for complex psychological problems. Different developments in other therapies, such as cognitive behaviour therapy and other psychotherapies, have influenced the theories and techniques of schema therapy (Edwards & Arntz, in Vreeswijk et al., 2012). Young (1990; 1999) build on the traditional cognitive therapy methods, by emphasizing, acknowledging and examining the origin of psychiatric problems in childhood and adolescence, and by emphasizing emotive techniques, maladaptive coping styles and the

patient-therapist relationship. The therapist can hand cognitive, affective, behaviour focused, interpersonal and experiential strategies. Also, the therapist can confront patients when they keep showing dysfunctional patterns in their behaviour. The therapist can meet certain needs of the patients, which were not fulfilled in their childhood, by so-called 'limited reparenting' (Young et al., 2005).

A main focus point in schema therapy is modes. Modes describe the schemas and coping styles that are active at one moment, a shorter period of time. Modes are a person's state (Young et al., 2003). Young et al. (2003) differentiate fourteen modes, which can be divided into four categories. The first category displays the dysfunctional child modes, which are modes that develop when the basic needs of a child are not met. This results in child-like thoughts, feelings and behaviour. The second category withholds the maladaptive coping modes. These modes are used to protect themselves from pain. The dysfunctional parent modes together are the third category, which present the criticizing or disapproving parent, and makes someone hate or pressure themselves. The fourth and last category represents the functional modes, and display healthy forms of expression, adaption and behaviour. These modes are further explained in Table 14, which can be found in Appendix A.

Modes are expected to change in different ways during treatment (Jacob & Arntz, 2013; Kellogg & Young, 2006). When healthy behaviour is stimulated and patients are able to stay in a safe environment, it is likely that the functional modes increase. When new behaviour is tested and experimented with, coping modes could increase, because this experimentation could bring stress. The duration of that increase depends on the complexity of the personality problems. During treatment, these coping modes are explained in the context of the history of patients, which ultimately shows the necessity of using those coping modes. Patients get tools and lessons that show how to go against the dysfunctional parent modes, which eventually causes decrease of those modes. When these modes decreased, there is more room for the child modes. The belief is that these modes need care, and when this succeeds, there is ultimately room for the functional modes to provide that care (Jacob & Arntz, 2013; Kellogg & Young, 2006). All these possibilities, tools and environments are given in inpatient schema focused psychotherapy.

As said earlier in this chapter, the focus of research into the effectivity of schema therapy has mostly been on the borderline personality disorder, cluster C personality disorders or personality disorders not otherwise specified. Even though this focus was narrow, literature and clinical practice showed positive treatment results for personality disorders in general (Akwa GGZ, 2017). Different researches compared schema therapy with the other

possibilities mentioned before. A randomized controlled trial done by Farrell et al. (2009) showed schema therapy to be more effective than treatment as usual for the borderline personality disorder. They mentioned that treatment with schema therapy leads to recovery and improved overall functioning. Research of Giesen-Bloo et al. (2006), a randomized controlled trial, showed schema therapy to be more effective than transference-focused psychotherapy. It also showed a lower drop-out rate in patients that received schema therapy. Another research of Van Asselt et al. (2008) showed schema therapy to be more cost-effective. Bamelis et al. (2014) mentioned in their research that schema therapy is superior to treatment as usual for the borderline personality disorder, but that the effectivity for other personality disorders should still be reviewed. Their research, also a randomized controlled trial, showed schema therapy to be more effective than treatment as usual for the avoidant, dependent, obsessive-compulsive, histrionic, narcissistic and paranoid personality disorders. This concerns the number of recovered patients, the recovery of comorbid mood disorders and global functioning. Also the drop-out rate was significantly lower. Even though in total costs there seemed to be no significant difference, schema therapy seemed to be the most cost effective treatment (Bamelis, 2014). Wetzelaer et al. (2016) gave an overview of the literature that is available on the cost-effectiveness of psychotherapy for personality disorders, particularly dialectic behavioural therapy, cognitive behavioural therapy and schema therapy. Of both dialectic behavioural therapy and cognitive behavioural therapy research shows contradicting results. There was research available that showed the cost-effectivity, but also that did not show the cost-effectivity or was inconclusive. For schema therapy, both studies that they reviewed showed the therapy to be cost-effective.

Research of Wolterink & Westerhof (2018) gave more clarity about the way the schema modes, and the symptoms of psychopathology patients have, changed over time during inpatient treatment. They explained that treating different modes all ask for a different approach, and that it is therefore important to gain insights in the way these modes change over time. Also the relation between the change of those modes and the symptoms of psychopathology patients experience, were considered in the research of Wolterink & Westerhof (2018). Their research showed that there is a relation between the symptoms of psychopathology and the change in the modes. Their research showed that dysfunctional coping modes, dysfunctional parent and child modes decrease during treatment, and functional modes increase. This development corresponds with the decrease of symptoms of psychopathology. Also the research of Schaap et al. (2016) shows that symptoms of psychopathology or psychological distress decrease during and after treatment, and that

schemas and schema modes are predictive of this factor. Their research showed this improvement to be maintained until six months after inpatient treatment. Also research of Marissink (2021) showed there to be a relation between the change in symptoms of psychopathology and the change in modes. However, in those researches the symptoms of psychopathology are taken as a whole, without making a difference between different kinds of symptoms of psychopathology or different categories that can be distinguished. As mentioned before, the personality disorders are now described based on different dimensions, facets and traits (Davey, 2014). This description based on dimensions, facets and traits gives a more detailed description of a certain personality disorder and patients characteristics, and therefore a more detailed and complex treatment. To specify and improve treatment, and possibly make it more personal, it could be helpful to gain insight in a more detailed description of that treatment and its results. Therefore, in this research, the relation between the symptoms of psychopathology and the change in modes is researched again, but in a more detailed way. The knowledge about that more specific coherence can contribute to optimising treatment.

In addition, even though GGZ standaarden stated that the longer the treatment of personality disorders, the better the results (Akwa GGZ, 2018), and different researches displayed the effectivity of inpatient schema therapy for personality disorders (Wolterink & Westerhof, 2018; Schaap et al., 2016; Marissink, 2021), there is less and less room for inpatient treatment. Inpatient treatment is only implied when no other treatment method is possible and inpatient treatment is necessary, and to go against unnecessary long durations of treatment or too many different treatments, beds should be kept available for patients that really need it, and outpatient care should be implied as soon as possible (Ministerie van Volksgezondheid, Welzijn & Sport, 2018). To further contribute to the evidence of the effectivity of inpatient schema therapy for personality disorders, it is important to gain further insights in the changes in symptoms and modes.

The goal of this paper is therefore to research the relation between different specific kinds of symptoms of psychopathology and the development of the different modes. The knowledge as written above contributes to the following research question: ‘To what extent is there a relation between the change of specific symptoms of psychopathology and the change of the different categories of modes in the treatment of personality disorders with inpatient schema therapy?’. This research question is divided into the following subquestions:

1. To what extent do specific symptoms of psychopathology change during treatment with schema therapy?

2. Is there a relation between the change of specific symptoms of psychopathology and the change of the different categories of modes?

Method

Design

A naturalistic, prospective, within-subjects design was used in the current study. The research was based on a larger research, which is conducted among patients within the inpatient setting of Mediant De Boerhaven. The data collection took place between 2012 and 2020, within the same protocol as earlier explained within the research of Wolterink & Westerhof (2018). That data collection protocol has been approved by the ethics committee of the faculty BMS of the University of Twente, and by the committee of scientific research at Mediant. The data was collected at four different moments during the treatment of patients: one before treatment, one during treatment (after approximately 33 weeks), one at the end of treatment and one follow-up measurement after six months. At every measurement, the same questionnaires, which are part of a bigger test battery, have been used, namely the Brief Symptom Inventory (BSI) and the Schema Mode Inventory (SMI).

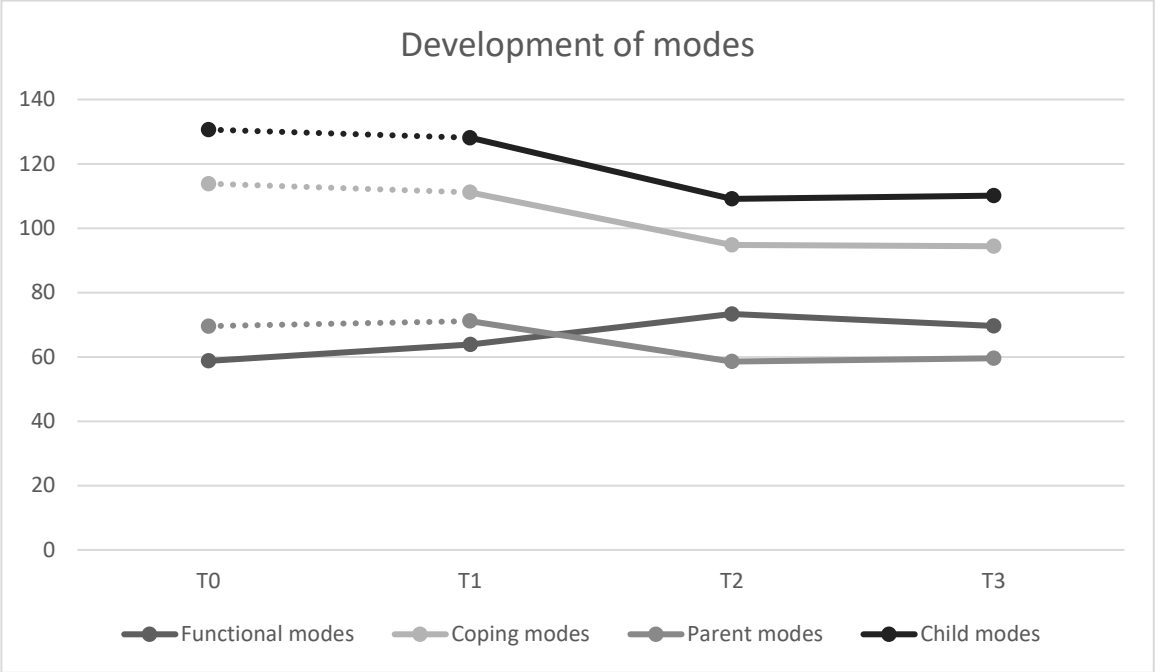
Participants

Participants for this study were recruited from a specialized treatment setting in the Netherlands, called Mediant Kliniek De Boerhaven (previously known as Mediant Kliniek De Wieke). This clinic offers a twelve months during inpatient treatment for patients with a personality disorder, or personality pathology, who did not benefit (enough) from previous treatment. Patients stay at De Boerhaven for five days a week, Sunday night till Friday afternoon, and go home during weekends. Those five days are carefully structured. During these five weeks, patients receive psychotherapy, socio-therapy, drama therapy, art therapy and psychomotor therapy. It is also possible for patients to apply for modules, for example trauma module or a module especially for women or men. The schedule of such a week can be found in Appendix B. Two times each week, patients have group psychotherapy with two psychotherapists, or one psychotherapist and one co-therapist. Patients can bring in different subjects they are struggling with, which can be situations or problems in their group, their weekend or from their past. A maximum of 27 patients are able to stay at De Boerhaven. The treatment is offered by a multidisciplinary team that works with inpatient schema therapy that is offered in smaller groups of nine patients each (Mediant, 2021).

As described before, Wolterink & Westerhof (2018) also researched the development of the different modes during inpatient treatment. To gain insight in the way the modes develop exactly during the treatment of the participants, this is displayed in Figure 1.

Figure 1

Development of modes



Note. Solid line is significant with $p<.05$; dotted line is not significant.

For this research, the data of 148 participants is collected (men: 25.2%, women: 74.8%). Participants could be included when they were minimum eighteen years old. The average age of the participants was 26.92 years old (SD = 6.537, range = 18 – 44). A number of 96 (64.9%) of these participants completed the full treatment, and the average time period was 44.87 weeks (SD = 16.551 weeks, range = 1 - 87).

Table 2

Demographic data participants

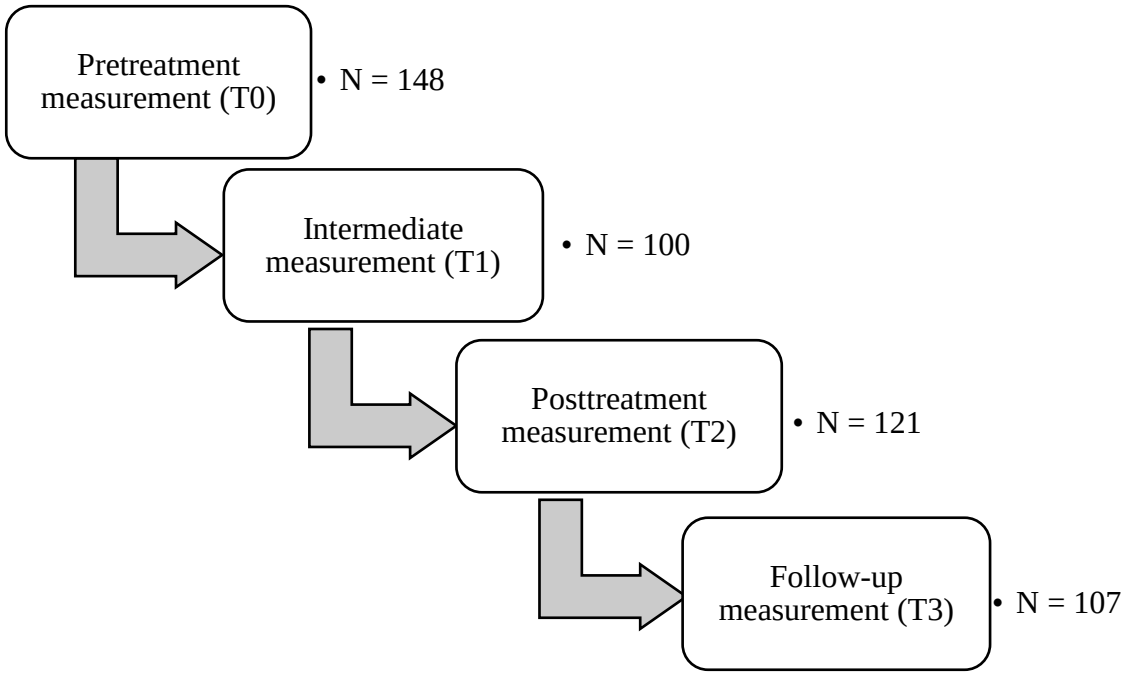
Demographic trait		
Gender	Men	25.2%
	Women	74.8%
Age	Mean	26.92
	SD	6.537
	Range	18 – 44
Treatment	Completed by	64.9%
	Average time period (weeks)	44.87
	SD	16.551

	Range	1 – 87

Of the total number of 148 participants, 100% completed the first measurement. A percentage of 67.6% completed the second measurement, and 81.8% the third. Finally, 72.3% participated and completed the follow-up measurement. Not all 148 participants filled in the questionnaires of all measurements. They could for example participate in the first and last measurement, but not in the second and third measurement.

Figure 2

Diagram of participants



Instruments

For this research, a quantitative method is used. In this approach, the data is converted into numerical forms, which can then be subjected to statistical analyses (Babbie, 2016). The participants completed two self-report questionnaires, the Brief Symptom Inventory, to measure the specific symptoms of psychopathology, and the Schema Mode Inventory, to measure the specific modes.

Brief Symptom Inventory

The Brief Symptom Inventory (BSI; De Beurs, 2008) is developed from the SCL-90-R, and research has showed the self-report questionnaire to be an acceptable shorter version.

Research into the internal consistency reliability and test-retest have both shown very good results. The internal consistency ranges with an alpha of .71 to .96. The test-retest reliability is between .71 and .90 (De Beurs & Zitman, 2006). The BSI is developed to measure psychological symptoms, divided into different primary symptom dimensions. Those dimensions are somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Also the total score, the total number of symptoms and the severity of those symptoms is measured. The BSI consists of 53 items on which participants score different questions on a 5-point Likert scale (0 = not at all, 4 = extremely). Using that Likert scale, they can indicate to what degree they experienced that complaint to be present during the past week, including today. Examples of questions are "*Pains in the heart or chest*" (somatization scale), "*Trouble concentrating*" (cognitive problems), "*Never feeling close to another person*" (interpersonal sensitivity scale), "*Thoughts of death or dying*" (depression scale), "*Suddenly scared for no reason*" (anxiety scale), "*Feeling easily annoyed or irritated*" (hostility scale), "*Feeling afraid to travel on buses, subways or trains*" (phobic anxiety scale), "*The idea that someone else can control your thoughts*" (paranoid ideation), and "*Feeling lonely*" (psychoticism scale). A description of the different scales can be found in Appendix C.

Schema Mode Inventory

The Schema Mode Inventory (SMI; Young et al., 2007) was developed to measure schema modes. Participants answer 124 items, with a 6-point Likert scale (1= never or almost never, 6=always). Research of Lobbestael et al. (2010) has shown good psychometric qualities, and indicates that the shorter version of the SMI is a valuable measure that can be used to assess modes during schema therapy. The internal consistency of the subscales were acceptable, with an alpha ranging from .79 to .96. Test-retest reliability of separate modes was between .65 and .92 (Lobbestael et al., 2010). The modes that are measured with the SMI, the different categories of modes, are as explained in the introduction, and scores above 50 percent are considered to be 'high'. Examples of items are "*I feel fundamentally inadequate, flawed, or defective*." (Vulnerable Child), "*If I don't fight, I will be abused or ignored*." (Angry Child), "*I have rage outbursts*." (Enraged Child), "*I have trouble controlling my impulses*." (Impulsive Child), "*If I can't reach a goal, I become easily frustrated and give up*." (Undisciplined Child), "*I try very hard to please other people In order to avoid conflict, confrontation or rejection."* (Compliant Surrenderer), "*I feel cold and heartless toward other people*." (Detached Protector), "*I work or play sports intensively so that I don't have to think about upsetting things*." (Detached Selfsoother), "*I do things to make myself the centre of*

attention." (Self Aggrandizer), "*I demand respect by not letting other people push me around.*" (Bully and Attack), "I deny myself pleasure because I don't deserve it." (Punitive Parent), "*I'm hard on myself*." (Demanding Parent), "*When there are problems, I try hard to solve them myself*." (Healthy Adult), and "*I feel loved and accepted*." (Happy Child).

Procedure

Before, during and after treatment, participants are asked to fill in the self-report questionnaires. In the beginning of the first measurement, participants receive an explanation of the questionnaires they are going to fill in, and they are asked to sign an informed consent. In that informed consent is mentioned what the research withholds, and that their data is going to be anonymized before is it used. This informed consent can be found in Appendix D. During their treatment, there is a second measurement. The third measurement is at the end of their treatment. The treatment has a total duration of twelve months. After treatment, there is a follow-up meeting after six months. The questionnaires are filled in online or on paper. Participants receive an e-mail or paper on which they can find their log-in into a closed-off environment on their computer, laptop, tablet or phone. For the follow-up measurement, participants were contacted via e-mail. After each measurement, the results on the questionnaires are scored, interpreted and written down in a paper by students of the master Psychology. The results were then communicated to them after every measurement.

Data analysis

To analyse the data, the statistical program IBM SPSS Statistics 21 was used. The characteristics of participants, so-called demographic data, was displayed in frequency tables.

First, all measurements have been reviewed to see if the data is normally distributed. This has been done by analysing histograms, and by performing the Kolmogorov-Smirnov test.

Multiple multilevel analysis has been performed to analyse the differences in the different scales of symptoms of psychopathology, measured by the BSI, for every measurement. This analysis has been chosen so that missing data does not have to be corrected for or imputed (Field, 2018). To measure the in- and/or decrease of the different categories of symptoms of psychopathology, every scale has been analysed separately. The different scales of the BSI have been imputed as a dependent variable. Every measurement has been taken into account, as a fixed effect. To determine which covariance type resulted in the strongest model, the 2 restricted log likelihood has been compared between different covariance types. The strongest model was the result of using the unstructured covariance

type. A change between measurements was determined with the Least Significant Difference, and was mentioned to be significant with a p-value of <0.05. The estimated marginal means are used to calculate the effect sizes. With that, the rule of thumb that says that a Cohen's d of < 0.49 = small effect; 0.50 – 0.79 = medium effect; 0.80 – 1.29 = large effect and > 1.30 = extremely large effect, is used.

To measure a possible relation between the development in symptoms of psychopathology and modes, a more complex multilevel analysis has been performed. Each category of modes has been added to the model with every category of symptoms of psychopathology as the dependent variable. Each category of modes has been added to the model as a covariate. This has been done in the same order as Wolterink & Westerhof (2018), of which the order is based on the expected change during treatment. For every category of symptoms of psychopathology, a separate analysis has been performed. While adding each category of modes as a covariate, it has been tested if the model got stronger, by comparing the -2LL (Log likelihood), the AIC (Akaike Information Criterium) and the BIC (Bayesian Information Criterium).

Results

Multilevel analysis BSI

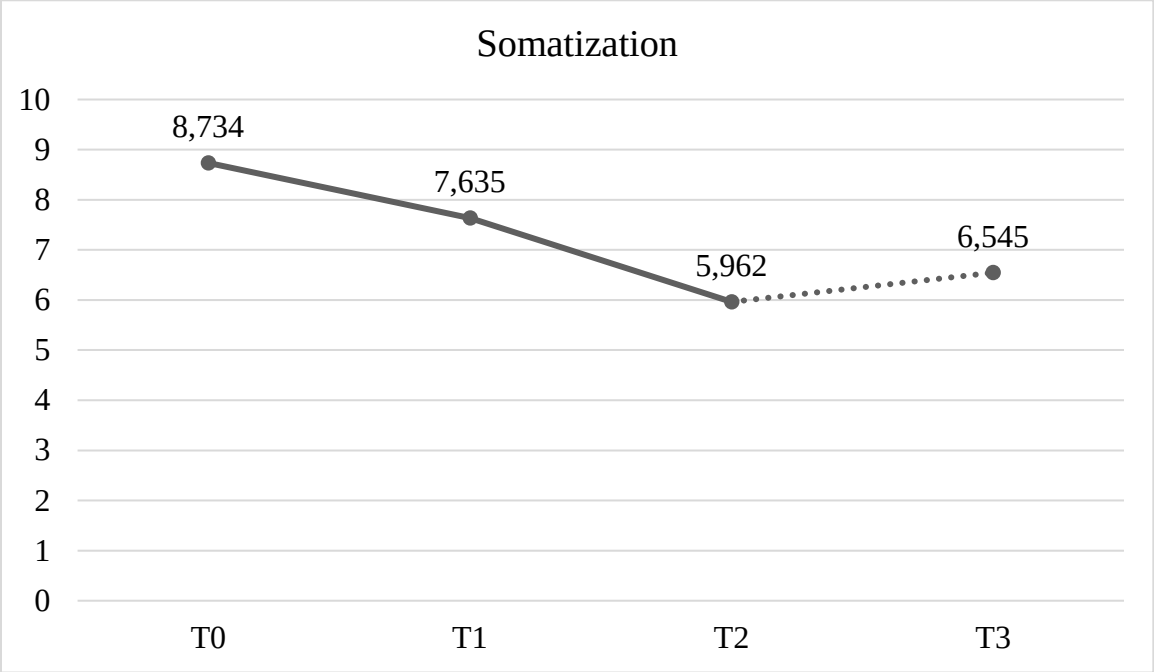
To answer the first research question ‘To what extent do specific symptoms of psychopathology change during treatment with schema therapy?’, a multilevel analysis has been performed with every category of symptoms of psychopathology. The Tables in which the results, and also the effect sizes are displayed, can be found in Appendix E.

Somatization scale

The score on the somatization scale decreases significantly between T0, T1 and T2. Between T2 and T3, the score does not change significantly. This can be found in Table 17, in Appendix E, and Figure 3.

Figure 3

Development Somatization scale over time



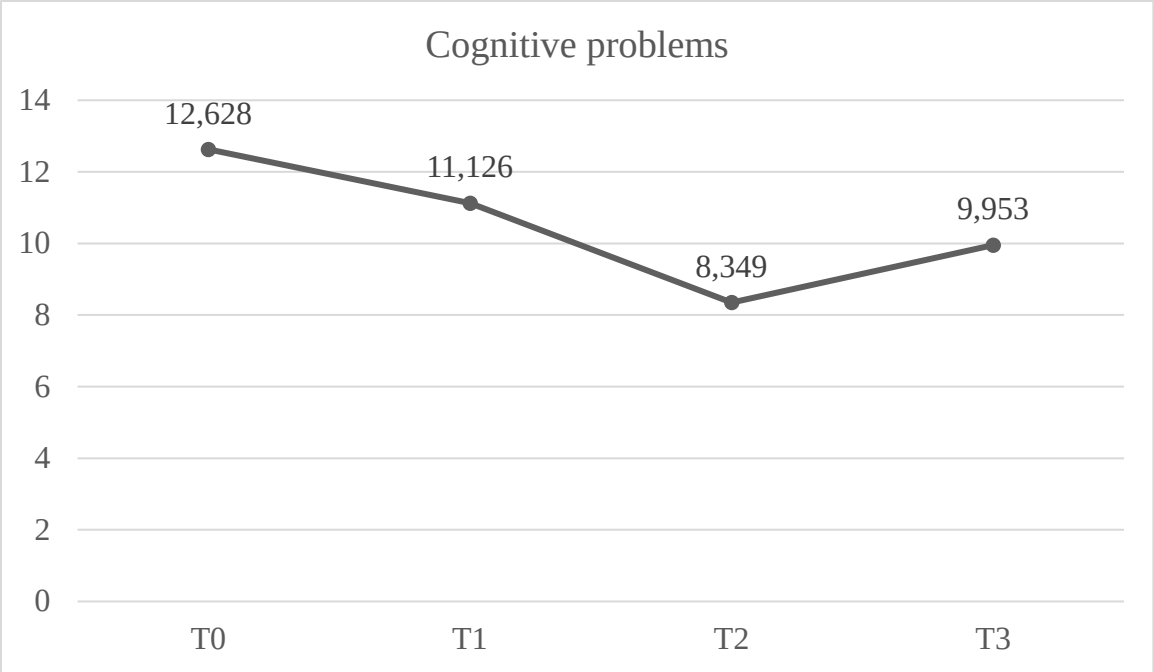
Note. Solid line is significant with $p<.05$; dotted line is not significant.

Cognitive problems scale

The score on the scale concerning cognitive problems changes significantly between every measurement. The score decreases significantly between every measurement. An exception is the change between T2 and T3. The score increases there, and that increase is significant with $p<.05$. This can be found in Table 18, in Appendix E, and Figure 4.

Figure 4

Development Cognitive problems scale over time



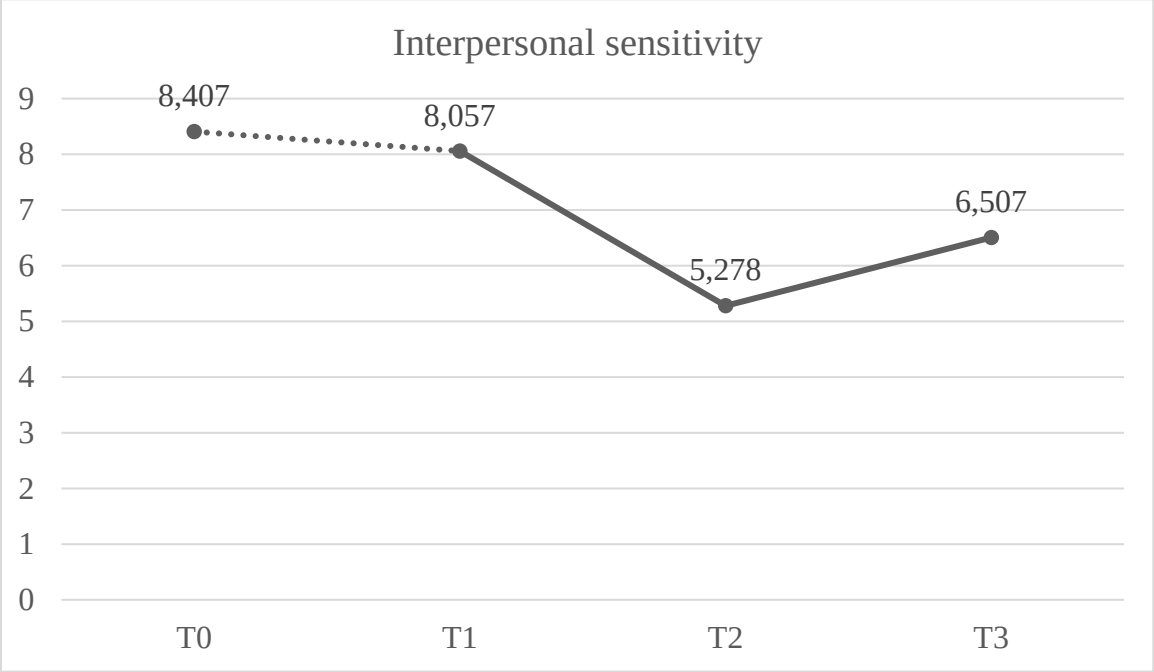
Note. Solid line is significant with $p<.05$.

Interpersonal sensitivity scale

The score on the interpersonal sensitivity scale does not decrease significantly between T0 and T1. Between T0 and T2, T0 and T3, and T1 and T2, the score decreases significantly. Between T2 and T3 the score increases, and this increase is significant. This can be found in Table 19, in Appendix E, and Figure 5.

Figure 5

Development Interpersonal sensitivity scale over time



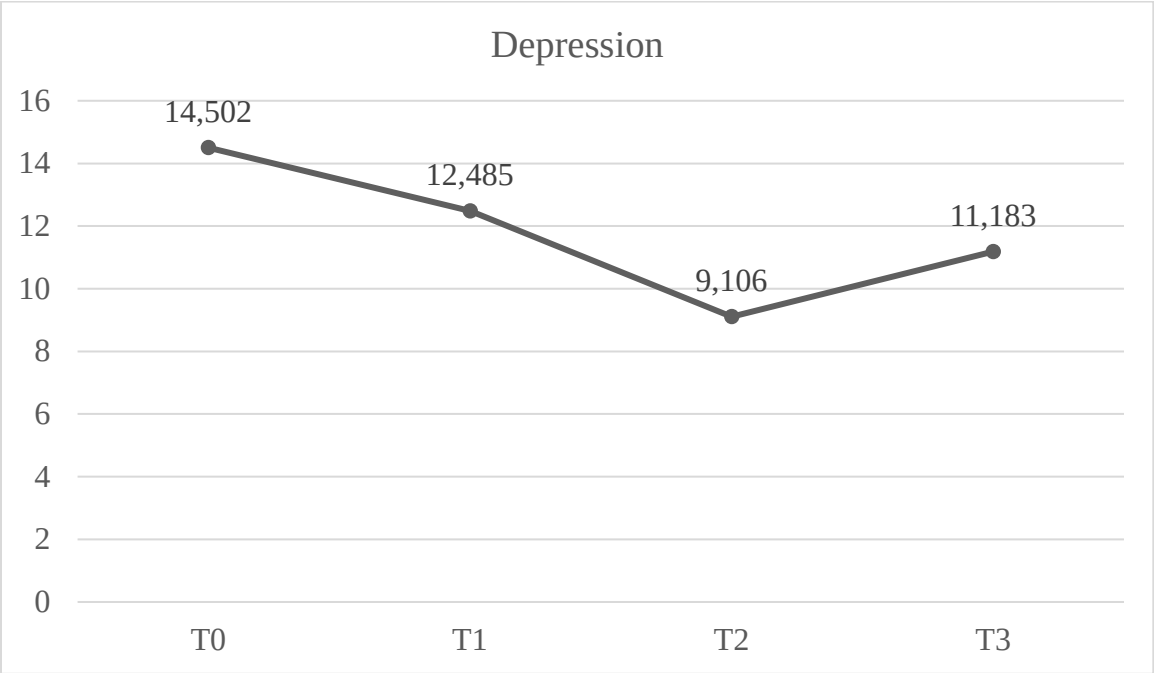
Note. Solid line is significant with $p<.05$; dotted line is not significant.

Depression scale

The score on the depression scale decreases between T0 and T1, T0 and T2, T0 and T3, and T1 and T2. These decreases are all significant with $p<.05$. Between T2 and T3 the score increases, and this increase is significant. This can be found in Table 20, in Appendix E, and Figure 6.

Figure 6

Development Depression scale over time



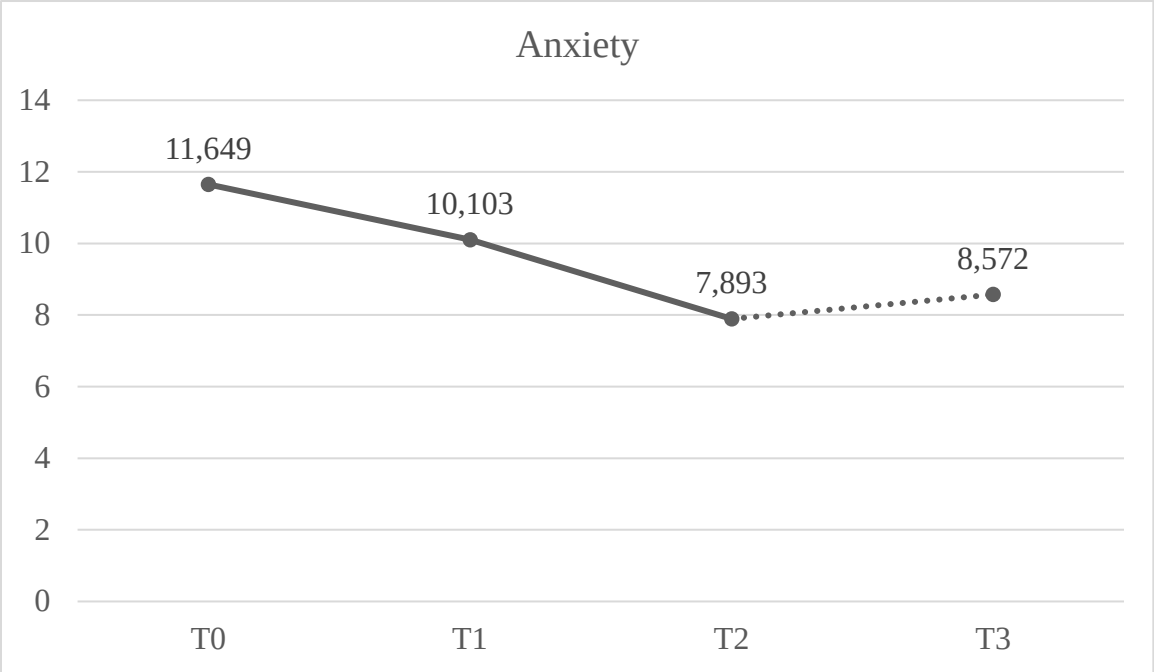
Note. Solid line is significant with $p<.05$.

Anxiety scale

Between T0 and T1, T0 and T2, T0 and T3, and T1 and T2, the score on the Anxiety scale decreases, and this decrease is significant with $p<.05$. The score on this scale does not increase significantly between T2 and T3. This can be found in Table 21, in Appendix E, and Figure 7.

Figure 7

Development Anxiety scale over time



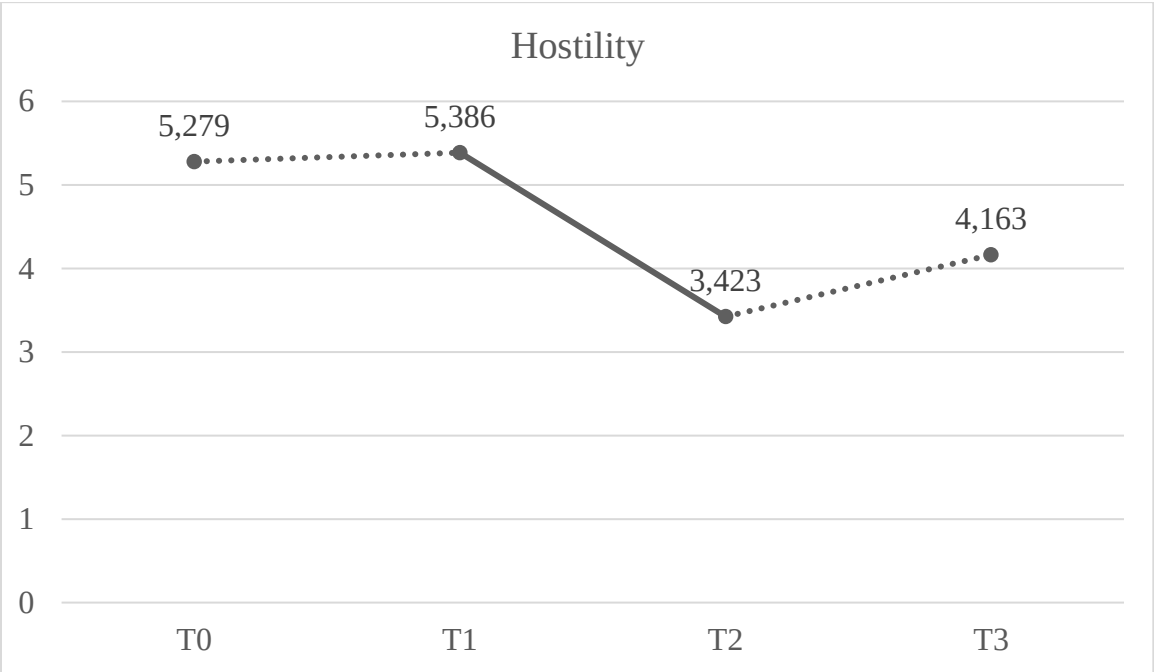
Note. Solid line is significant with $p<.05$; dotted line is not significant.

Hostility scale

The score on the hostility scale increases between T0 and T1, but this increase is not significant. Between T0 and T2, T0 and T3, and T1 and T2, the score on this scale decreases, and this decrease is significant with $p<.05$. Between T2 and T3 the score does not change significantly. This can be found in Table 22, in Appendix E, and Figure 8.

Figure 8

Development Hostility scale over time



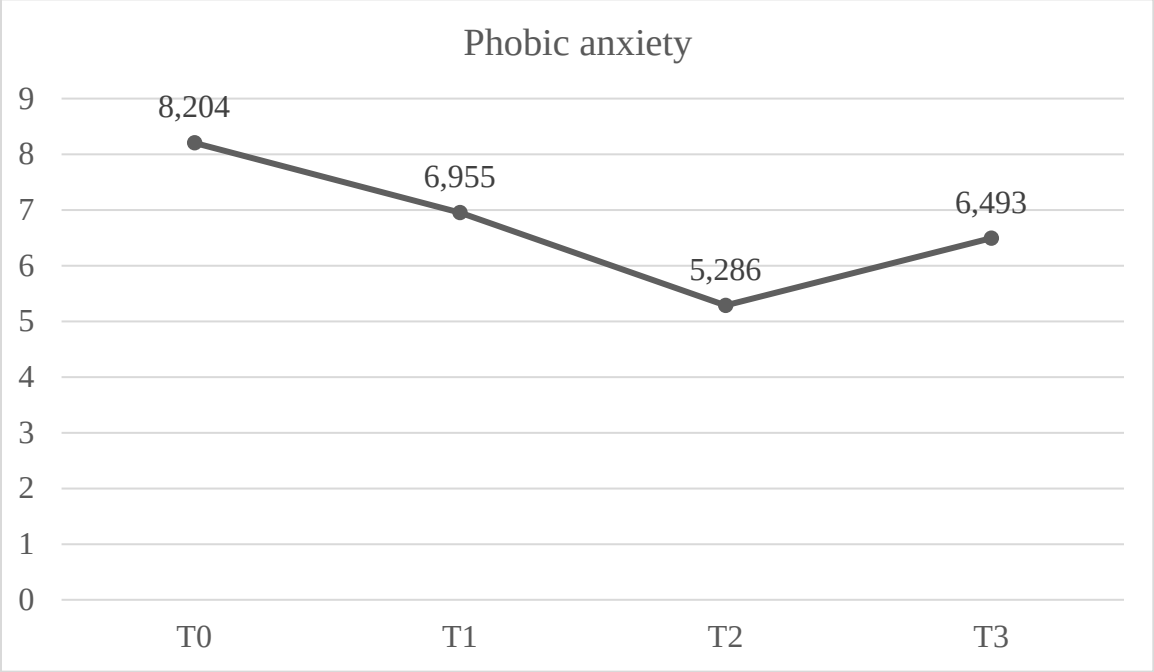
Note. Solid line is significant with $p<.05$; dotted line is not significant.

Phobic anxiety scale

The score on the phobic anxiety scale decreases significantly between T0 and T1, T0 and T2, T0 and T3, and T1 and T2. However, between T2 and T3 the score increases, and also this increase is significant with $p<.05$. This can be found in Table 23, in Appendix E, and Figure 9.

Figure 9

Development Phobic anxiety scale over time



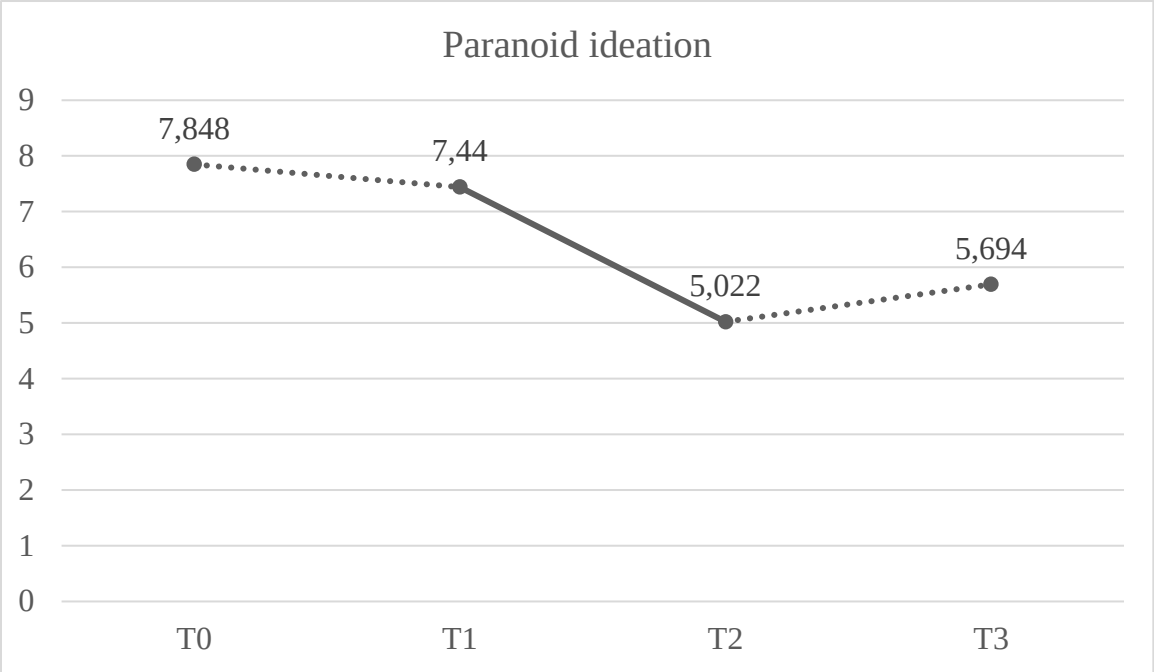
Note. Solid line is significant with $p<.05$.

Paranoid ideation

Between T0 and T1 the score on the Paranoid ideation scale does not decrease significantly. Also between T0 and T2, T0 and T3, and T1 and T2 the score on this scale decreases, and those changes are significant with $p<.05$. Between T2 and T3 the score does not change significantly. This can be found in Table 24, in Appendix E, and Figure 10.

Figure 10

Development Paranoid ideation scale over time



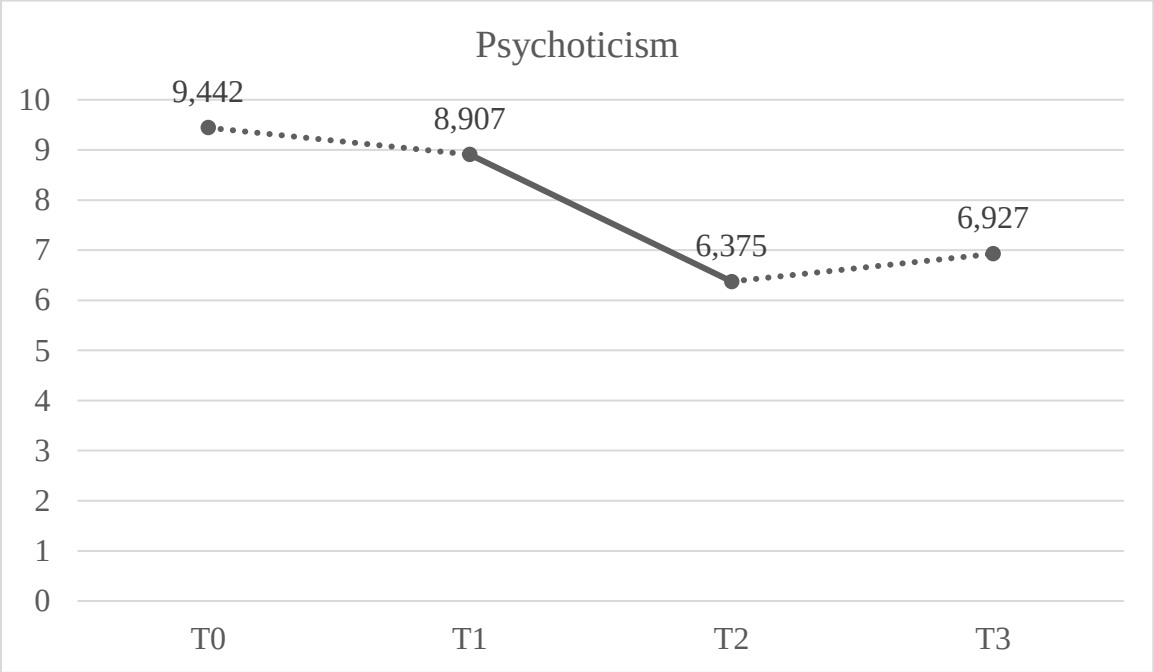
Note. Solid line is significant with $p<.05$; dotted line is not significant.

Psychoticism scale

The score on the psychoticism scale decreases between T0 and T1, but this decrease is not significant. The score on this scale between T0 and T2, T0 and T3, and T1 and T2 decreases, and this decrease is significant with $p<.05$. Between T2 and T3, the score on this scale does not increase significantly. This can be found in Table 25, in Appendix E, and Figure 11.

Figure 11

Development Psychoticism scale over time



Note. Solid line is significant with $p<.05$; dotted line is not significant.

The effect sizes between T0 and T1 are small ($d<.49$) for every category of symptoms of psychopathology. The effects sizes between T0 and T2 are medium ($.50<d<.79$) for Somatization, Anxiety, Hostility, Phobic anxiety, Paranoid ideation and Psychoticism, and large ($.80<d<1.29$) for Cognitive problems, Interpersonal sensitivity and Depression. Between T0 and T3, the effect sizes are small ($d<.49$) for Somatization, Hostility, Phobic anxiety and Paranoid Ideation, and medium ($.50<d<.79$) for Cognitive problems, Interpersonal sensitivity, Depression, Anxiety and Psychoticism. An overview of the effect sizes can be viewed in Table 26, which can be found in Appendix E.

Multivariate multilevel analysis BSI and SMI

To answer the second research question 'Is there a relation between the change of specific symptoms of psychopathology and the change of the different categories of modes?' a complex multilevel analysis has been performed, to analyse a possible relation between the results of the BSI and the SMI. Each category of modes, in other words the score on a particular scale of the SMI, was added to the multilevel analysis model as a covariate, with the category of symptoms of psychopathology as a dependent variable. The results of that multilevel analysis can be viewed below.

The results show the model to get stronger, each time a category of modes is added to the model. This is reviewed by the decrease of the -2 Log Likelihood, AIC and BIC. This applies for every category of symptoms of psychopathology.

The results then show if the effects of the categories of modes are significant, also after adding other categories of modes. In Model B, the functional modes have been added. In Model C, the coping modes have been added. In Model D, the parent modes have been added. In Model E, the child modes have been added. Further models are all specific for each category of symptoms of psychopathology, and are therefore explained below.

Somatization scale

For Somatization, both the relation between the Somatization scale and the Functional Modes as the relation between the Somatization scale and the Coping modes, seem to be significant with $p<.05$. However, after adding the parent modes, both previous relations are not significant anymore. After adding the child modes, the relation between the Somatization scale and the coping modes, parent modes and child modes are significant. The relation with functional modes is not significant. Therefore, in Model F the functional modes have not been

added to the model anymore. This shows, by reviewing the -2LL, AIC and BIC, to be the strongest model. This can be viewed in Table 3.

Table 3

Complex multilevel analysis with modes as covariate - Somatization

Model	**A**	**B**	**C**	**D**	**E**	**F**
Intercept	8.73*	14.02*	9.23*	4.64	.57	.58
	(.46)	(1.01)	(2.66)	(2.73)	(2.83)	(1.24)
T0	0	0	0	0	0	0
T1	-1.10*	-.49	-.50	-1.04*	-1.28*	-1.27*
	(.47)	(.49)	(.50)	(.52)	(.52)	(.51)
T2	-2.77*	-1.40*	-1.27*	-1.34*	-1.50*	-1.50*
	(.48)	(.54)	(.54)	(.55)	(.53)	(.51)
T3	-2.19*	-1.48*	-1.21*	-1.27*	-1.43*	-1.43*
	(.55)	(.56)	(.56)	(.55)	(.55)	(.55)
Functional modes		-.09*	-.06*	-.03	.00	-
		(.02)	(.02)	(.02)	(.02)	
Coping modes			-.03*	-.01	-.05*	-.05*
			(.01)	(.02)	(.01)	(.02)
Parent modes				.09*	.10*	.10*
				(.02)	(.02)	(.02)
Child modes					.05*	.05*
					(.01)	(.01)
-2LL	2547.273	2302.939	2284.218	2261.759	2237.596	2237.596
AIC	2575.273	2332.939	2316.218	2295.759	2273.596	2271.596
BIC	2632.424	2392.849	2303.001	2363.529	2345.307	2339.323

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Cognitive problems scale

For Cognitive problems, the relation between the Cognitive problems scale and the functional modes and the coping modes is significant. However, after adding the parent modes, the relation with the coping modes is not significant anymore. Also after adding the child modes, the relation with the coping modes is not significant. The relation with the functional modes and parent modes remain significant, and also the relation with the child modes is significant with $p<.05$. Therefore, in Model F, the coping modes have not been added to the model anymore. However, by reviewing the -2LL, AIC and BIC, removing the coping modes from the model does not increase the strength of the model. Model E is therefore the strongest model. The results can be viewed in Table 4.

Table 4

Complex multilevel analysis with modes as covariate – Cognitive problems

Model	**A**	**B**	**C**	**D**	**E**	**F**
Intercept	12.62*	23.07*	15.14*	10.63*	8.83*	8.55*
	(.42)	(1.04)	(2.39)	(2.45)	(2.58)	(2.47)

T0	0	0	0	0	0	0
T1	-1.50*	-.62	-.68	-1.13*	-1.22*	-1.19*
	(.43)	(.42)	(.42)	(.42)	(.42)	(.42)
T2	-4.28*	-1.58*	-1.35*	-1.40*	-1.53*	-1.50*
	(.51)	(.53)	(.52)	(.51)	(.51)	(.50)
T3	-2.68*	-.96	-.55	-.56	-.67	-.64
	(.60)	(.59)	(.59)	(.57)	(.57)	(.56)
Functional modes		-.18*	-.13*	-.10*	-0.09*	-.09*
		(.02)	(.02)	(.02)	(.02)	(.02)
Coping modes			.05*	-.02	-.01	-
			(.01)	(.01)	(.02)	
Parent modes				.09*	.09*	.09*
				(.02)	(.02)	(.02)
Child modes					.02*	.02*
					(.01)	(.01)
-2LL	2541.467	2231.378	2204.969	2178.222	2166.117	2180.335
AIC	2569.467	2261.378	2236.969	2212.222	2202.117	2214.335
BIC	2626.586	2321.250	2300.712	2279.949	2273.783	2282.147

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Interpersonal sensitivity scale

For Interpersonal sensitivity, adding the functional modes and coping modes, the relations are both significant. However, after adding the parent modes, the relation with the coping modes is not significant anymore. After adding the child modes, the relations with coping modes remains insignificant and also the relation with child modes is not significant. Therefore, in Model F, the coping modes and child modes have been removed from the model. However, this does not increase the strength of the mode, as the -2LL, AIC and BIC show. Model E is therefore the strongest model. The results can be viewed in Table 5.

Table 5

Complex multilevel analysis with modes as covariate – Interpersonal sensitivity

Model	**A**	**B**	**C**	**D**	**E**	**F**
Intercept	8.41*	15.70*	10.15*	6.36*	5.30*	6.67*
	(.32)	(.78)	(1.83)	(1.83)	(1.94)	(1.45)
T0	0	0	0	0	0	0
T1	-.35	.50	.46	.02	-.03	-.01
	(.37)	(.38)	(.38)	(.38)	(.38)	(.38)
T2	-3.13*	-1.30*	-1.16*	-1.22*	-1.27*	-1.23*
	(.37)	(.38)	(.38)	(.37)	(.37)	(.36)
T3	-1.90*	-.60	-.30	-.31	-.35	-.39
	(.43)	(.45)	(.45)	(.43)	(.43)	(.42)
Functional modes		-.13*	-.09*	-.07*	-.06*	-.07*
		(.01)	(.02)	(.02)	(.02)	(.01)

Coping modes			-.03* (.01)	.00 (.01)	-.01 (.01)	-
Parent modes				.08* (.01)	.08* (.01)	.08* (.01)
Child modes					.02 (.01)	-
-2LL	2311.831	2028.096	2003.908	1968.462	1960.720	1982.541
AIC	2339.831	2058.096	2035.908	2002.462	1996.720	2014.541
BIC	2396.950	2117.968	2099.651	2070.189	2068.385	2078.404

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Depression scale

For Depression, adding the functional modes and the coping modes show a significant relation with both. Also here, after adding the parent modes, the relation with the coping modes is insignificant. The relation with the parent modes and child modes are both significant. In Model F, the coping modes have been removed from the model. This does not increase the strength of the model. In that model, the relation with the child modes is not significant anymore. Therefore, in Model G the child modes have been removed. However, also this does not increase the strength of the model. Model E is therefore the strongest model. The results can be viewed in Table 6.

Table 6

Complex multilevel analysis with modes as covariate – Depression

Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**
Intercept	14.50* (.45)	29.64* (1.16)	23.48* (2.71)	17.96* (2.75)	15.95* (2.91)	14.69* (2.81)	17.88* (2.17)
T0	0	0	0	0	0	0	0
T1	-2.01* (.52)	-.37 (.49)	-.40 (.49)	-1.00* (.50)	-1.10* (.50)	-1.06* (.50)	-1.01* (.50)
T2	-5.40* (.64)	-1.62* (.57)	-1.45* (.57)	-1.54* (.56)	-1.66* (.56)	-1.54* (.55)	-1.52* (-.55)
T3	-3.32* (.70)	-.72 (.62)	-.32 (.62)	-.33 (.60)	-.46 (.59)	-.41 (.58)	-.42 (.58)
Functional modes		-.26* (.02)	-.23* (.02)	-.19* (.02)	.17* (.02)	-.16* (.02)	-.18* (.10)
Coping modes			-.04* (.01)	.00 (.02)	.03 (.02)	-	-
Parent modes				.11* (.02)	.11* (.02)	.10* (.02)	.10* (.02)
Child modes					.03* (.01)	.02 (.01)	-
-2LL	2709.594	2319.133	2296.220	2268.260	2256.303	2274.835	2285.279
AIC	2737.594	2349.133	2328.220	2302.260	2292.303	2308.835	2317.279
BIC	2794.713	2409.005	2391.962	2369.987	2363.968	2376.647	2381.143

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Anxiety scale

Adding the functional modes and the coping modes, show a significant relation in the model of Anxiety with $p<.05$. However, also here, the significant relation with the coping modes disappear after adding the parent modes. Both the parent modes and the child modes show a significant relation with $p<.05$. In Model F, the coping modes have been removed from the model, but do not increase the strength of the model, as showed by the -2LL, AIC and BIC. In that model, the relation with the functional modes is not significant anymore, so the functional modes have also been removed in Model G. However, this also does not increase the strength of the model. Model E is therefore the strongest model. The results can be viewed in Table 7.

Table 7

Complex multilevel analysis with modes as covariate – Anxiety

Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**
Intercept	11.65* (.43)	20.98* (1.13)	12.73* (2.65)	8.21* (2.68)	3.98 (2.78)	2.52 (2.68)	-1.58 (1.16)
T0	0	0	0	0	0	0	0
T1	-1.55* (.52)	-.47 (.49)	-.53 (.49)	-1.10* (.50)	-1.30* (.51)	-1.21* (.50)	-1.39* (.50)
T2	-3.76* (.55)	-1.46* (.57)	-1.25* (.56)	-1.34* (.55)	-1.49* (.56)	-1.32* (.55)	-1.60* (.53)
T3	-3.08* (.59)	-1.38* (.60)	-.95 (.60)	-1.00 (.59)	-1.17* (.59)	-.99 (.57)	-1.18* (.56)
Functional modes		-.16* (.02)	-.11* (.02)	-.08* (.02)	-.05* (.02)	-.04 (.02)	-
Coping modes			.05* (.01)	.01 (.01)	-.03 (.02)	-	-
Parent modes				.09* (.02)	.10* (.02)	.09* (.02)	.10* (.02)
Child modes					.05* (.01)	.04* (.01)	.05* (.01)
-2LL	2580.520	2295.900	2267.837	2242.087	2219.030	2239.895	
AIC	2608.520	2325.900	2299.837	2276.087	2255.030	2273.895	
BIC	2665.639	2385.772	2363.580	2343.814	2326.695	2341.707	

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Hostility scale

For Hostility, adding the functional modes shows a significant relation with $p<.05$. After adding the coping modes, the significant relation with the functional modes disappears. Adding the parent modes add no significant relation. After adding the child modes, a significant relation with those modes show, and the significant relation with the other modes disappear. In Model F, the functional modes, coping modes and parent modes have been

removed from the model. However, this does not increase the strength of the model, as showed by the -2LL, AIC and BIC. Model E is therefore the strongest model. The results can be viewed in Table 8.

Table 8

Complex multilevel analysis with modes as covariate – Hostility

Model	**A**	**B**	**C**	**D**	**E**	**F**
Intercept	5.28*	10.02*	-1.97	-2.00	-6.67*	-3.88*
	(.33)	(.80)	(1.80)	(1.90)	(1.82)	(.69)
T0	0	0	0	0	0	0
T1	.11	.63	.50	.49	.18	.28
	(.37)	(.39)	(.37)	(.37)	(.37)	(.37)
T2	-1.86*	-.68	-.38	-.38	-.50	-.34
	(.36)	(.42)	(.40)	(.40)	(.40)	(.38)
T3	-1.12*	-.31	.24	.24	.16	.24
	(.38)	(.42)	(.41)	(.41)	(.39)	(.37)
Functional modes		-.08*	-.01	-.01	.03	
		(.01)	(.02)	(.02)	(.02)	
Coping modes			.07*	.07*	.01	
			(.01)	(.01)	(.01)	
Parent modes				.00	.00	
				(.01)	(.01)	
Child modes					.07*	.07*
					(.01)	(.00)
-2LL	2271.443	2047.898	1988.108	1988.106	1927.251	1942.577
AIC	2299.443	2077.898	2020.108	2022.106	1963.251	1972.577
BIC	2356.530	2137.733	2083.810	2089.790	2034.871	2032.374

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Phobic anxiety scale

For Phobic anxiety, the addition of the functional modes to the model, shows a significant relation $p<.05$. The coping modes do not show a significant relation after those have been added to the model. Both the parent modes and the child modes do show a significant relation after those have been added, the relation with the coping modes stays insignificant. In Model F, the coping modes have been removed from the model. Removing the coping modes from the model, shows the relation with the child modes to no longer be significant. Therefore, in Model G, also the child modes have been removed, but this does also not cause the strength of the model to increase. Model E is therefore the strongest model. The results can be viewed in Table 9.

Table 9

Complex multilevel analysis with modes as covariate – Phobic anxiety

Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**

Intercept	8.20* (.42)	15.11* (.95)	12.61* (2.31)	10.18* (2.40)	8.19* (2.53)	6.89* (2.43)	9.61* (1.90)
T0	0	0	0	0	0	0	0
T1	-1.25* (.38)	-.54 (.37)	-.57 (.37)	-.86* (.38)	-.95* (.38)	-.88* (.38)	-.84* (.38)
T2	-2.91* (.44)	-1.25* (.48)	-1.20* (.48)	-1.22* (.48)	-1.31* (.48)	-1.18* (.48)	-1.18* (.48)
T3	-1.71* (.45)	-.64 (.48)	-.46 (.49)	-.49 (.49)	-.58 (.49)	-.48 (.48)	-.51 (.48)
Functional modes		-.12* (.01)	-.10* (.02)	-.09* (.02)	-.07* (.02)	-.07* (.02)	-.09* (.02)
Coping modes			.02 (.01)	.00 (.01)	-.03 (.02)	-	.05* (.01)
Parent modes				.05* (.02)	.06* (.02)	.04* (.02)	-
Child modes					.03* (.01)	.02 (.01)	-
-2LL	2442.503	2170.466	2153.217	2143.482	2132.565	2151.223	2159.664
AIC	2470.503	2200.466	2185.217	2177.482	2168.565	2185.223	2191.664
BIC	2527.622	2260.338	2248.960	2245.208	2240.231	2253.035	2255.528

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Paranoid ideation scale

Adding the functional modes and the coping modes both show a significant relation with the Paranoid ideation scale with $p<.05$. The parent modes also show a significant relation, but the relation with the functional modes is not significant anymore in that model. After adding the child modes, the model shows a significant relation for the parent modes and child modes, and an insignificant relation for the functional and coping modes. In Model F, the functional modes and the coping modes have been removed, but this does not cause the strength of the model to increase. Model E is therefore the strongest model. The results can be viewed in Table 10.

Table 10

Complex multilevel analysis with modes as covariate – Paranoid ideation

Model	**A**	**B**	**C**	**D**	**E**	**F**
Intercept	7.48* (.38)	14.22* (.93)	1.29 (2.09)	-.99 (2.19)	-4.38 (2.24)	-3.63* (.93)
T0	0	0	0	0	0	0
T1	-.04 (.39)	-.64 (.40)	.45 (.39)	.19 (.40)	.10 (.40)	.09 (.39)
T2	-2.46* (.43)	-.83 (.47)	-.50 (.45)	-.54 (.48)	-.60 (.45)	-.67 (.43)
T3	-1.79* (.46)	-.74 (.48)	-.15 (.49)	-.19 (.48)	-.29 (.48)	-.38 (.47)

Functional modes		-.12* (.01)	-.04* (.02)	-.02 (.02)	.00 (.02)	-
Coping modes			.08* (.01)	.06* (.01)	.02 (.01)	-
Parent modes				.04* (.01)	.04* (.01)	.05* (.01)
Child modes					.05* (.00)	.06* (.01)
-2LL	2398.289	2137.727	2079.614	2071.720	2044.331	2063.853
AIC	2426.289	2167.727	2111.614	2105.720	2080.331	2095.853
BIC	2483.408	2227.599	2175.357	2173.447	2151.996	2159.676

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Psychoticism scale

For Psychoticism, all modes show a significant relation with $p<.05$ after those have been added to the model. However, in the last model, the relation with the coping modes is not significant anymore. In Model F, the coping modes have been removed from the model. However, as reviewed by the -2LL, AIC and BIC, the model did not get stronger. Model E is therefore the strongest model. The results can be viewed in Table 11.

Table 11

Complex multilevel analysis with modes as covariate – Psychoticism

Model	**A**	**B**	**C**	**D**	**E**	**F**
Intercept	9.44* (.31)	19.31* (.82)	10.88* (1.86)	7.61* (1.93)	5.27* (2.01)	5.48* (1.94)
T0	0	0	0	0	0	0
T1	-.53 (.38)	.47 (.36)	.42 (.36)	.07 (.37)	-.03 (.37)	-.02 (.37)
T2	-3.07* (.44)	-.64 (.39)	-.41 (.39)	-.46 (.39)	-.56 (.39)	-.54 (.38)
T3	-.52* (.49)	-.94* (.43)	-.51 (.43)	-.52 (.42)	-.61 (.42)	-.64 (.41)
Functional modes		-.17* (.01)	-.12* (.02)	-.10* (.02)	.08* (.02)	-.08* (.02)
Coping modes			.05* (.01)	.03* (.01)	.00 (.01)	-
Parent modes				.06* (.01)	.06* (.01)	.06* (.01)
Child modes					.03* (.01)	.03* (.01)
-2LL	2376.847	2039.797	2001.500	1982.679	1965.403	1980.864
AIC	2404.847	2069.797	2033.500	2016.679	2001.403	2014.864
BIC	2461.934	2129.631	2097.202	2084.363	2073.023	2082.634

Note. In parentheses is the standard error. With * is significant with $p<.05$.

Discussion

The aim of this research was to gain insight in the relation between specific categories of symptoms of psychopathology and the development of different categories of modes during and after inpatient schema therapy for patients with personality disorders.

Change in symptoms of psychopathology

To answer the first subquestion 'To what extent do specific symptoms of psychopathology change during treatment with schema therapy?' the first results in the previous chapter are reviewed, in which the development of every category of symptoms of psychopathology per measurement is displayed. Every category of complaints decreases significantly between the pre-treatment measurement (T0) and the follow-up measurement (T3). The majority of the categories already decrease significantly between the pre-treatment measurement and the intermediate measurement (T1). The remaining categories start to decrease after the intermediate measurement. Lastly, four of nine categories show an increase between post-treatment measurement and follow-up measurement. An overview of the changes between measurements is shown in Table 12.

Table 12

Overview of changes in categories of complaints between measurements

	T0 – T3	**T0 – T1**	**T1 – T2**	**T2 – T3**
Somatization	Decrease	Decrease	Decrease	
Cognitive problems	Decrease	Decrease	Decrease	Increase
Interpersonal sensitivity	Decrease		Decrease	Increase
Depression	Decrease	Decrease	Decrease	Increase
Anxiety	Decrease	Decrease	Decrease	
Hostility	Decrease		Decrease	
Phobic anxiety	Decrease	Decrease	Decrease	Increase
Paranoid ideation	Decrease		Decrease	
Psychoticism	Decrease		Decrease	

Note. Every de- or increase that is displayed in this table, is significant with $p<.05$.

The results that show a decrease of every category of complaints, corresponds with research done by Schaap et al. (2016), which also showed participants to report a significant decrease of symptoms, measured with the BSI. Also research of Marissink (2021) showed the symptoms to decrease between beginning and the end of treatment, measured with the BSI, which correspond with the results that are found in the current research. Results shown in

research of Wolterink & Westerhof (2018) also correspond with the results of this current research, and show the symptoms to significantly decrease between pre-treatment measurement and follow-up measurement. It is difficult to compare the results of specific categories of symptoms to other researches, because little to no research is done with specific symptoms.

However, the goal of this research was to also research a change in specific categories of symptoms, instead of researching the symptoms generally. In that, the results differ. Research of Wolterink & Westerhof (2018) show the symptoms to decrease significantly between pre-treatment measurement and intermediate measurement, where the current research shows there to be a difference between the categories of symptoms. Also, the Wolterink & Westerhof (2018) state the results to increase significantly between post-treatment measurement and the follow-up measurement, where again the current research shows different outcomes for different categories of complaints.

As shown in Table 12, the categories that do not show a decrease between the pre-treatment measurement and the intermediate measurement, but start to decrease after the intermediate measurement, are Interpersonal sensitivity, Hostility, Paranoid ideation and Psychoticism. These categories mostly measure externalizing pathology. As described in Table 16, which can be found in Appendix C, these categories measure symptoms that concern contact with other people. The Interpersonal sensitivity scale measures symptoms of social anxiety, fear of judgment, feelings of inferiority or shyness (De Beurs, 2008). A possible explanation for the finding that these symptoms do not decrease in the beginning of treatment, is because patients are confronted even more with contact with other people. They could be confronted with feelings of social anxiety, fear of judgment or shyness then, because the contact between them and other patients is increasing. The Hostility scale measures symptoms of anger or hostility, and also in the Paranoid ideation scale symptoms of hostility, as well as symptoms of suspicion or megalomania are measured (De Beurs, 2008). Also these symptoms could mostly come forward in contact with other people, for example frustration towards someone or suspiciousness in contact with other people. Therefore, it is a possible explanation for these symptoms to take a little longer to decrease, because contact with other people is stimulated within inpatient treatment at Mediant De Boerhaven. Lastly, the Psychoticism scale measures symptoms of a withdrawn lifestyle (De Beurs, 2008). Again, the confrontation with contact with that many people during inpatient treatment could cause the need for someone to withdraw to increase.

Another way to view these results, is to view the symptoms in comparison with the facets of personality disorders in the DSM-5 (American Psychiatric Association, 2013; Davey, 2014). Even though the symptoms cannot be directly compared to the facets, because it is not researched if they measure the same construct, it is interesting to view possible comparisons. The symptoms that do not seem to decrease between the pre-treatment measurement and intermediate measurement, seem to correspond most with the facets of personality disorders. Interpersonal sensitivity could possibly correspond with Submissiveness, Separation insecurity, Anxiousness, Intimacy avoidance or Restricted affectivity, which come forward in different domains of personality disorders. Hostility and Paranoid ideation could also correspond with different domains. The facet Hostility is mentioned in different domains, and Manipulation, Suspiciousness and Unusual beliefs and experiences are mentioned within different domains. Symptoms as Somatization, Cognitive problems or Phobic anxiety correspond less with the facets of personality disorders. A possible explanation for these symptoms to decrease significantly later on in treatment, could be that more facets of personality disorders are measured within these symptoms. However, this cannot be scientifically proven, because the relation between the facets of personality disorders and the symptoms measured by the BSI cannot yet be found in literature.

Then, the symptoms that increase significantly again between post-treatment measurement and follow-up measurement are Cognitive problems, Interpersonal sensitivity, Depression and Phobic anxiety. The scale Cognitive problems measures disruptions in the cognitive domain, like problems with concentration, decision making or memory (De Beurs, 2008). A possible explanation for the increase within these symptoms is that patients live in a quite safe and structured environment for approximately twelve months at De Boerhaven. After treatment, the absence of that safe and structured environment and therefore the need to structure by themselves, could possibly cause problems within concentration or decision making, or could cause those problems to show, when they were already there. A possible increase in interpersonal sensitivity, could be that patients are again confronted with other people. Where in the beginning of treatment, they are confronted with a new group of patients, that group is familiar to them at the end of treatment. However, when they leave treatment, they are again confronted with new, unfamiliar people, which could possibly lead to new problems in interpersonal sensitivity. The scale Phobic anxiety measures the symptoms of fear for specific situations (De Beurs, 2008). The same explanation could be applicable here. For twelve months, patients have been in a quite safe environment, which means that leaving treatment also means being confronted with new situations that could

bring symptoms of fear. The Depression scale measures symptoms of depression, like suicidal thoughts, hopelessness, losing interest or negative affect (De Beurs, 2008). Also leaving a structured and safe environment, could be a possible explanation for the depressive symptoms to increase.

Change in symptoms of psychopathology and change in categories of modes

To answer the second subquestion 'Is there a relation between the change of specific symptoms of psychopathology and the change of the different categories of modes?' the last part of the previous chapter is reviewed. These results show there to be a relation between the change in specific symptoms and the change in specific categories of modes. For almost every category of complaints, there does not seem to be a relation with the coping modes. For almost every category of complaints, there does seem to be a relation with the parent modes. An overview of the presence of the relations between the specific symptoms of psychopathology and the categories of modes can be viewed in Table 13.

Table 13

Presence or absence of relations between specific symptoms and categories of modes

	Functional modes	**Coping modes**	**Parent modes**	**Child modes**
Somatization		X	X	X
Cognitive problems	X		X	X
Interpersonal sensitivity	X		X	
Depression	X		X	X
Anxiety	X		X	X
Hostility				X
Phobic anxiety	X		X	X
Paranoid ideation			X	X
Psychoticism	X		X	X

Note. A relation between the specific symptoms and the category of modes is displayed with 'X'.

The research of Wolterink & Westerhof (2018), Schaap et al. (2016) and Marissink (2021) showed there to be a relation between the change in the symptoms of psychopathology and the change in the parent, child and functional modes. The results of the current research correspond with those, but there are exceptions.

There is a relation found between the change in the Somatization scale and the change in the coping, parent and child modes. The relation between the decrease of the symptoms in the Somatization scale and the decrease of these modes could be explained by the stress that could be caused by those modes, which then result in maladaptive coping and possible somatic symptoms (Young et al., 2003; Lobbestael et al., 2007; Martin & Young, 2010; De Beurs, 2008). The Somatization scale measures bodily symptoms, possibly caused by anxiety or by another psychological cause (De Beurs, 2008). The relation between the decrease of these symptoms and the decrease of the coping, child and parent modes, could be explained by the possibility that patients find another way to cope with their anxiety or other psychological distress. The decrease of child modes could mean that basic child needs are met more frequently, which could result in less feelings of anxiety, anger or frustration. The decrease of the parent modes could mean that there are less punishing or criticizing thoughts, and less pressure put on themselves. The decrease of the coping modes could mean less maladaptive coping (Young et al., 2003; Lobbestael et al., 2007; Martin & Young, 2010). The decrease of negative feelings, thoughts and behaviour could result in less stress and therefore less somatization, and also a (maladaptive) coping strategy could then be less needed.

There is a relation between the change in the Paranoid ideation scale and the change in parent, child and coping modes. The relation between the change in the Paranoid ideation scale and the change in parent, child and coping modes, could be explained by reviewing the modes. The Paranoid ideation scale measures symptoms of suspicion, hostility or megalomania (De Beurs, 2008). These symptoms could possibly mostly correspond with the dysfunctional modes, thus the parent, child and coping modes. The child modes show reason for suspicion, because basic needs of the child have not been met (Young et al., 2003; Lobbestael et al., 2007; Martin & Young, 2010). When those reasons decrease, it is possible that the symptoms also decrease, or when basic needs are met, there is less reason for suspicion. The coping modes then show dysfunctional ways to handle that suspicion, for example being compliant, grandiosity or avoiding the negative feelings (Young et al., 2003; Lobbestael et al., 2007; Martin & Young, 2010). Again, when the suspicion fades away, there is no reason for maladaptive coping strategies, or when more helpful ways of coping are learned, the suspicion could fade.

There is a relation between the change in the Interpersonal sensitivity scale and the change in the functional and parent modes. The relation between the change in the Interpersonal sensitivity scale, and the change in the functional and parent modes could be explained by the parent modes causing someone to be critical towards themselves and

therefore experiencing difficulties in relationships with others, and the functional modes to set boundaries for that criticism (Young et al., 2003; Lobbestael et al., 2007; De Beurs, 2008).

Lastly, between the change in the Hostility scale and the change in modes, there is only a relation found between the change in that scale and the change in the child modes. The symptoms that are measured by the Hostility scale (De Beurs, 2008), may mostly correspond with the characteristics of the child modes, such as feeling angry, frustrated or impatient, or damaging or hurting people or objects (Young et al., 2003; Lobbestael et al., 2007; Martin & Young, 2010).

Except for the Somatization scale, the results of the symptoms that do not correspond with earlier research, are also the symptoms that do not show a change in the beginning of treatment. The Interpersonal sensitivity scale, Hostility scale and Paranoid ideation scale all decrease after the intermediate measurement, and do not decrease between the pre-treatment measurement and the intermediate measurement. The change in these scales also show no relation with the change in functional modes. As shown in Figure 2, the functional modes is also the only category of modes that show a change between the pre-treatment measurement and the intermediate measurement. These symptoms mostly show externalizing pathology. Within this externalizing pathology, it is focused on the relationship with others, either by negative thoughts or feelings about these relationships, or by negative behaviour within these relationships. These negative thoughts, feelings or negative behaviour is also displayed in the coping, parent and child modes (Young et al., 2003; Lobbestael et al., 2007; Martin & Young, 2010; De Beurs, 2008). That could be a possible explanation for the difference within the results of this current research, and the research of Wolterink & Westerhof (2018), Schaap et al. (2016) and Marissink (2021).

Also, there is a relation between the change in almost all the symptoms and the parent modes. The parent modes are described by a punishing or critical voice of a parent. This voice can be perceived as punitive, criticizing or limiting, which causes a patient to put a lot of pressure on oneself to meet the unrealistic high standards of the parents (Young et al., 2003; Lobbestael et al., 2007). This pressure that is put on oneself, is related to symptoms of psychopathology (Didden et al., 2008). Therefore, it could be an explanation that the decrease of that punishing and critical voice of a parent, the parent modes, results in less symptoms.

There is also a relation between the change in almost all the symptoms and the change in child modes. When reviewing the child modes in Martin & Young (2010), feelings of hopelessness, anxiety, anger, frustration, loneliness, isolation, feeling unlovable or excluded

or worthless are used to describe those modes. Those feelings are also used to describe different symptoms, such as Interpersonal sensitivity, Anxiety or Hostility. The correspondence between these symptoms and the description of the child modes, could possibly explain the relation between the change in both. Also, a patient being met more in their needs or care, could cause the child modes to decrease (Jacob & Arntz, 2013; Kellogg & Young, 2006). This could possibly correspond with the decrease of symptoms, because a patient is met in their care.

Conclusion

To answer the research question 'To what extent is there a relation between the change of specific symptoms of psychopathology and the change of the different categories of modes in the treatment of personality disorders with inpatient schema therapy?', all the results that are reviewed and displayed above, are considered. There is a relation between the change in specific symptoms of psychopathology and the change in different categories of modes. This is different for almost every specific symptom of psychopathology and for every category of modes, which made it an interesting contribution to view the different specific symptoms.

Strengths and limitations

As far as known, this study is (one of the) first studies that looked into the specific categories of symptoms of psychopathology, in combination with the categories of modes. In previous researches, the symptoms of psychopathology were taken as a whole, instead of differentiating between different categories of symptoms of psychopathology. This is a strength, because it provides a broader insight into the development of symptoms of psychopathology during inpatient schema therapy for patients with a personality disorder. However, the uniqueness of this research can be viewed as a limitation, because of the impossibility to compare the results of this research to the results of similar researches.

A second limitation of this research is the absence of a control group. Because the patients stay in an inpatient setting, and these patients have been used as the focus group, it was not possible to use a control group. This means that the results that this research shows, could not be assigned to the effects of schema therapy with hundred percent certainty.

Third, there has been no difference made between treatment durations. This could be a strength, because the treatment was provided over a longer period of time, and the data was collected over an even bigger period of time. A limitation could be that there was no difference made between the different treatment durations. There was no difference made between shorter treatment duration due to possible drop-outs or longer treatment duration due to extensions. Not making a difference between these treatment durations could either give a

more positive view, because considering drop-outs could show those patients to have a more negative treatment result, and those are not pointed out now. It could also give a more negative view, because the drop-outs could negatively influence the average treatment result. This could also be a strength, because patients with shorter treatment durations are also considered in the results. This could give a more realistic view of clinical practice.

Missing data over different measurement could be considered to be a limitation. However, using the mixed model analysis, and that way being able to take all cases into consideration, despite missing data, can be considered as a strength (Field, 2018). Also, there has been no distinction made between patients that dropped out, patients that completed treatment or patients that had an extension. This could be considered to be a limitation. Then again, it could also be considered to be a strength, because it gives a more realistic view of clinical practice, in which all cases occur.

Finally, conducting research in an inpatient treatment setting, could be a strength, because it gives a clear image of the symptoms of psychopathology and development of modes. This could result in appropriate recommendations, that could fit this or similar settings.

Implications for research

In this research there was no distinction made between patients that dropped out, patients that completed treatment or patients that had an extension. For future research, it could be interesting to make a distinction between those groups. This could be interesting, because the group that for example asked for extension, could be experiencing more symptoms of psychopathology, or scored higher on specific modes than patients that completed treatment within a year. Also patients that left treatment early, could either be experiencing more symptoms of psychopathology or less symptoms of psychopathology, and could have a different development of modes than other groups of patients do. If there are differences between these groups, treatment could maybe be adjusted to these groups so that patients drop out less frequently or need an extension less frequently and treatment is more effective for these groups.

Next to that, it could also be interesting to research if there is a relation between the symptoms of psychopathology or the development of specific modes, and the way patients score on those characteristics a certain time-period after treatment, with for example a long-term follow-up after a couple years.

In this research, there also has been no distinction made between the results of patients with different patient characteristics, for example age or gender. It could be interesting to

research the development of symptoms of psychopathology and modes for those different patient characteristics. If there are certain differences, treatment can be made more personal, which could possibly increase the effects of treatment.

As explained before, it is unsure if the changes in modes and the changes in symptoms of psychopathology mutually influence each other. Therefore, it could be recommended to research that influence further. The exact focus of treatment could then be determined. If the influence is mutual, the focus could be broad and thus on both factors. If the influence of one of the two is stronger, the focus could be on that factor, and treatment could be specialized.

A recommendation for future research could also be to research a possible relation between the specific modes and the specific symptoms of psychopathology. In this research, the modes were researched in four categories, but it could be helpful to gain insight in which specific modes have a relation with the specific symptoms of psychopathology. Then, the treatment could become even more personal for specific patients, and focus on the specific modes and symptoms of psychopathology, instead of categories of them.

Implications for clinical practice

As mentioned in the introduction, schema therapy focuses on schemas and modes. First, healthy behaviour is stimulated and patients stay in a safe environment, which makes it likely for the functional modes to increase. The new behaviour is then tested and experimented with, which causes the coping modes to increase, because this could cause stress. Patients get tools and lessons on how to go against the parent modes, which causes a decrease of those modes. This causes there to be more room for the child modes, which need care, and eventually makes room for the functional modes to provide that care (Jacob & Arntz, 2013; Kellogg & Young, 2006). As the research of Wolterink & Westerhof (2018) has shown, it is important to focus more on those modes, because, as also this research proofs, there is a relation between the development of those modes and the development of symptoms of psychopathology. Therefore, the same recommendation can be given. However, because the results seem to differ per category of symptoms of psychopathology, it could be helpful to also focus a part of treatment on the symptoms of psychopathology. This could be done by for example offering psycho-education on those symptoms of psychopathology in the beginning of treatment. Psycho-education is a method which focuses on educating patients and handing them tools to develop competences that complement their mental health. This could be done by only sharing knowledge, but could also focus on developing competences and the possibility for patients to practice those with homework assignments (Van Daele et al., 2010). Van Daele et al. (2010) review different researches that show the effectivity of psycho-

education, and which show that a reduction of symptoms of psychopathology and symptoms is displayed in those researches. Psycho-education could therefore also be helpful in the beginning of inpatient schema therapy. The decrease of symptoms of psychopathology begin to show in the second half of treatment, pointed out by this research, and this decrease could maybe be caused to start sooner. This psycho-education could be focused on the symptoms of psychopathology that do not decrease in the first half of treatment and that mostly represent, as explained earlier, externalizing pathology and show in correspondence with other people. Preparing patients on the challenges they could face when living with other patients, could possibly help them in handling their symptoms of psychopathology.

A recommendation that is already done by Marissink (2021), can also be mentioned in relation to the results of the current study. Marissink (2021) explained there to be a relation between the change in the Punitive parent mode, one of the parent modes, and the change in symptoms. The current research again showed there to be a relation between the change in the parent modes and the change in most symptoms. Therefore, it could be helpful to intervene when the patient is asking too much of themselves, or when therapy is asking too much of a patient. During schema therapy, a patient is handed tools to go against their parent modes Jacob & Arntz, 2013; Kellogg & Young, 2006). When the parent mode is therefore high at the beginning of treatment, the focus could be more on these tools and how to use them. Later on in treatment, the focus could also be more on the Healthy adult, because this mode neutralizes parent modes (Young et al., 2003). This could for example be done by offering the Healthy adult module during treatment, developed by Claassen & Broersen (2019). There is also a relation between the change of almost every symptom and the change in child modes. The child modes mostly come down to the child not being met in their needs or care (Young et al., 2003; Lobbestael, van Vreeswijk, & Arntz, 2007). The functional modes can provide that care (Jacob & Artnz, 2013; Kellogg & Young, 2006). The increase in functional modes could possibly make the child modes decrease, which could then result in less symptoms. Therefore, the focus on the functional modes, for example the Healthy adult, is important.

Take home message

This research contributes to the evidence that inpatient schema therapy leads to a decrease of symptoms of psychopathology. This research also gave insight into the relation between the changes in specific symptoms and the changes in different categories of modes during inpatient schema therapy. Symptoms decrease significantly during inpatient schema therapy, and almost all have a relation with the increase of functional modes and the decrease of parent and child modes. There are differences between the different symptoms. Four of

nine symptoms decrease significantly in the second half of treatment, as well as the child and parent modes. This research also showed there to be a relation between those changes. As Wolterink & Westerhof (2018) stated, shortening the duration of inpatient treatment could lead to less positive treatment results. In a country, or world, where treatment is shortened and less beds for inpatient care are available (Ministerie van Volksgezondheid, Welzijn & Sport, 2018), the results of this research could contribute to that ongoing discussion.

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Appendices

Appendix A: Modes

Table 14

Modes

Category	Mode	Explanation
Dysfunctional child modes	Vulnerable child	Needs the help of a parent/caretaker, but is not met in that care. Therefore feels scared, sad, hopeless and overwhelmed. [a]
	Angry child	Basic child needs, emotional and/or physical, are not met. Therefore feels angry, frustrated or impatient.[b]
	Enraged child	Damages or hurts people or objects. The feeling that plays a role is intense, out-of-control anger.[b]
	Impulsive child	Shows impulsive behaviour, so for a short period of time, needs can be met.[a]
	Undisciplined child	Not able to complete boring or routine tasks, because the child feels easily frustrated and gives up quickly.[b]
Maladaptive coping modes	Compliant surrender	May allow others to treat him/her badly to maintain the relationship, and therefore behaves passive, dependent and helpless.[a]
	Detached protector	May behave cynical and pessimistic, and distance him/herself from others. Feels numb and empty. [b]
	Detached self-soother	Avoids negative feelings, mostly by showing self-soothing or self-stimulating behaviour.[b]
	Self-aggrandizer	Mostly concerned with his/her own feelings, instead of those of someone else. Behaves grandiose, competitive or in a status-seeking way to compensate inferior feelings they experience.[a]
	Bully and attack	Strategic and controlled behaviour, to

		overcompensate abuse or prevent humiliation.[b]
Maladaptive parent modes	Punitive parent	Mostly experienced in a way of an internalizing, punishing or critical voice of a parent, that is punitive, criticizing or limiting. Needs that were not allowed by parents, are now critized internally.[a b]
	Demanding parent	To meet the unrealistic high standards of the parents, he/she puts a lot of pressure on oneself.[a]
Healthy modes	Healthy adult	Shows healthy, mature behaviour. It also sets limits for dysfunctional child modes, stimulates the healthy child mode, replaces or combats dysfunctional coping modes, and neutralizes parent modes.[a]
	Happy child	Shows spontaneous and unstrained behaviour, feels loved, happy, protected and optimistic.[b]

Note. Adjusted from "Schema modes and patient characteristics as predictors of treatment outcome in a schema therapy-based treatment for inpatients with personality disorders," by S. Marissink, 2021, [master thesis, University of Twente], essay.utwente.nl/85852/1/Marissink_MA_BMS.pdf

[a]Young et al. (2003), [b]Lobbestael, van Vreeswijk, & Arntz (2007), [c]Martin & Young (2010).

Appendix B: Weekly client schedule

Table 15

Client schedule

Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
		7:45 – 08:05 Breakfast		
		08:05 – 08:30 Walk (if preferred)		
		08:30 – 08:45 Opening of the day (except for Mondays and Fridays)		
08:45 – 10:00	**09:00 – 10:15**	**09:00 – 10:15**	**09:00 – 10:15**	**09:00 – 10:15**
Reflection	Modules (when indicated)	Group A: PMT Group B: Sociotherapy Group C: Psychotherapy	Meeting with entire staff and all patients	Reflection
		10:30 – 10:45 Break		
11:00 – 12:15	**11:00 – 12:15**	**11:00 – 12:15**	**11:00 – 12:15**	**11:00 – 12:00**
Group A: Psychotherapy Group B: Drama therapy Group C: PMT	Group A: Sociotherapy Group B: Psychotherapy Group C: Drama therapy	Women module (art- & sociotherapy) Men module (psycho-, socio- and psychomotor therapy)	Group A: Psychotherapy Group B: PMT Group C: Art therapy	TG meeting
		12:35 – 13:05 Lunch		
13:30 – 14:45	**13:30 – 15:00**	**13:30 – 14:45**	**13:30 – 14:45**	
Group A: Drama therapy Group B: Psychotherapy Group C: Psychotherapy	Evaluation of treatment with individual client	Modules (when indicated)	Group A: individual time Group B: Art therapy Group C: Socio-therapy	
15:00 – 16:30	**15:00 – 16:30**	**15:00 – 16:30**	**15:00 – 16:15**	**14:30 – 14:45**
Sport	Module Time for individual appointments **15:30**	Module Time for individual appointments	Group A: Art therapy Group B: Individual time Group C: Individual time	Break **14:45** Patients leave for the weekend

Physical therapy

16:30 – 17:00 Individual moment
17:00 – 17:15 End of the day
17:15 – 18:15 Cooking
18:15 Dinner
19:45 – 20:00 Break

Every Sunday night patients have to be back at the clinic at a quarter to nine at night. There is room for a coffee/tea break with their smaller groups, after which they all come together in the bigger group for individual requests for help or questions.

Appendix C: Description BSI scales
Table 16

Description BSI scales

BSI scale	Description
Somatization	Bodily symptoms, like symptoms of somatic condition, but also like bodily symptoms that could be caused by anxiety. These symptoms are possibly caused psychologically, but a physical condition is not excluded.
Cognitive problems	Disruptions in the cognitive domain, like problems with concentration, decision making or memory.
Interpersonal sensitivity	Symptoms of social anxiety, fear of judgment, too conscious of own functioning, feelings of inferiority or shyness.
Depression	Symptoms of depression, like suicidal thoughts, hopelessness, losing interest or negative affect.
Anxiety	Symptoms of generalised anxiety (nervousness, restlessness, tension) or symptoms of panic.
Hostility	Symptoms of anger or hostility.
Phobic anxiety	Symptoms of fear for specific situations.
Paranoid ideation	Symptoms of suspicion, hostility or megalomania.
Psychoticism	Symptoms of a withdrawn lifestyle.

Note. Adjusted from "Brief Symptom Inventory (BSI): Handleiding," by E. de Beurs, 2008, PITS.

Appendix D: Informed consent

Onderzoek naar de werking en (kosten)effectiviteit van klinische schematherapie en vaktherapie.

Hierbij verklaar ik dat ik bereid ben deel te nemen aan onderzoek naar de werking en effecten van klinische schematherapie en vaktherapie.

Ik heb van de onderzoeker schriftelijke en mondelinge informatie gekregen over de inhoud, methode en doel van het onderzoek. Ik heb mijn vragen kunnen stellen en die zijn naar tevredenheid beantwoord. Ik begrijp waarover het onderzoek gaat. Ik heb voldoende tijd gehad om te beslissen of ik mee wil doen. Ik begrijp dat als ik niet meer mee wil doen, ik het onderzoek op ieder moment stop kan zetten.

Ik stem vrijwillig in met deelname aan onderzoek. De data mogen door de huidige en toekomstige onderzoekers gebruikt worden voor wetenschappelijk onderzoek naar klinische schematherapie en vaktherapie. De onderzoekers mogen daarvoor mijn dossier inzien. De onderzoekers mogen mij benaderen voor aanvullende vragen ten behoeve van het onderzoek.

Ik begrijp dat ik mijn vragen altijd kan stellen aan de huidige onderzoekscoördinator:
Karin Timmerman, K.Timmerman@mediant.nl, 088 - 373 6753.

Naam :
Geboortedatum :
Adres :
Postcode en woonplaats :

Email :
Telefoonnummer :

Datum :
Handtekening :

Ondergetekende, verantwoordelijke onderzoeker, verklaart dat de hierboven genoemde persoon zowel schriftelijk als mondeling over onderzoek is geïnformeerd.
Hij/zij verklaart tevens dat een voortijdige beëindiging van de deelname door bovengenoemde persoon, van geen enkele invloed zal zijn op de zorg die hem of haar toekomt. Alle gegevens van de deelnemers aan het onderzoek worden geanonimiseerd.

Naam :

Functie :

Datum :

Handtekening :

Appendix E: Results multilevel analysis BSI

Table 17

Multilevel analysis BSI Somatization

Somatization			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	1.100	.020
T0	T2	2.773	.000
T0	T3	2.189	.000
T1	T2	1.673	.000
T2	T3	-.584	.237

Table 18

Multilevel analysis BSI Cognitive problems

Cognitive problems			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	1.502	.001
T0	T2	4.279	.000
T0	T3	2.675	.000
T1	T2	2.777	.000
T2	T3	-1.604	.001

Table 19

Multilevel analysis BSI Interpersonal sensitivity

Interpersonal sensitivity			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	.350	.344
T0	T2	3.129	.000
T0	T3	1.900	.000
T1	T2	2.779	.000
T2	T3	-1.229	.002

Table 20

Multilevel analysis BSI Depression

Depression			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	2.017	.000
T0	T2	5.397	.000
T0	T3	3.319	.000
T1	T2	3.380	.000
T2	T3	-2.077	.000

Table 21

Multilevel analysis BSI Anxiety

Anxiety			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	1.547	.004
T0	T2	3.756	.000
T0	T3	3.078	.000
T1	T2	2.210	.000
T2	T3	-.679	.190

Table 22

Multilevel analysis BSI Hostility

Hostility			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	-.107	.775
T0	T2	1.856	.000
T0	T3	1.116	.004
T1	T2	1.963	.000
T2	T3	-.740	.058

Table 23

Multilevel analysis BSI Phobic anxiety

Phobic anxiety			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	1.250	.001
T0	T2	2.919	.000
T0	T3	1.711	.000
T1	T2	1.669	.000
T2	T3	-1.207	.005

Table 24

Multilevel analysis BSI Paranoid ideation

Paranoid ideation			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	.043	.913
T0	T2	2.462	.000
T0	T3	1.790	.000
T1	T2	2.419	.000
T2	T3	-.672	.116

Table 25

Multilevel analysis BSI Psychoticism

Psychoticism			
Measurement (I)	**Measurement (J)**	**Mean difference**	**Sig.**
T0	T1	.534	.163

T0	T2	3.067	.000
T0	T3	2.515	.000
T1	T2	2.533	.000
T2	T3	-.552	.202

Table 26

Effect size (Cohen's d) of change of symptoms of psychopathology

	Effect T0 → T1	**Effect T0 → T2**	**Effect T0 → T3**	**Effect T1 → T2**	**Effect T2 → T3**
Somatization	-.21	-.55	-.40	-.35	.11
Cognitive problems	-.31	-.82	-.51	-.54	.31
Interpersonal sensitivity	-.09	-.84	-.50	-.75	.33
Depression	-.36	-.93	-.56	-.55	.33
Anxiety	-.30	-.73	-.56	-.43	.12
Hostility	.02	-.53	-.30	-.58	.22
Phobic anxiety	-.26	-.60	-.34	-.36	.25
Paranoid ideation	-.01	-.57	-.40	-.59	.16
Psychoticism	-.14	-.75	-.61	-.60	.12