Personality as a predictor of therapeutic success in young adults

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Abstract

Background: Psychiatric treatment of young adults seems to produce only marginal results. Personality has been shown to be an important predictor of treatment success and attrition. In this study, the association between treatment success and personality organization (PO) was investigated. I hypothesized that higher levels of PO, which are characterized by higher levels of inhibition and control over impulses, were expected to benefit more from treatment compared to lower levels of PO.

Methods: In a sample of 187 young adults in outpatient ambulatory care, personality was assessed by the Dutch Short Form of the MMPI (DSFM). Scores were divided into three profiles: psychotic PO, borderline PO (BPO) and neurotic PO. BPO was further divided into five different sub profiles. Symptom severity was assessed by the Symptom Checklist 90-Revised at start of treatment and at the end of treatment. The reliable change index was calculated for the different levels of PO.

Results: Based on a repeated measures ANOVA, PO had a significant effect on therapeutic success, which was in accordance with the hypothesis. However, the levels of PO did not significantly differ from each other in decrease of symptoms or clinically significant change. Interesting though, DSM IV based diagnosis turned out to be a stronger predictor of treatment success in this study.

Conclusion: The relevance of the classification of levels of PO was not confirmed in this study. DSM IV based diagnosis turned out to be the better predictor of treatment success. The added value of levels of PO in the diagnostic and treatment process should be further researched in young adults.

1. Introduction

Mental illness in adolescents and young adults costs society 13 billion dollars annually in the United States (Insel, 2008). The psychiatric treatment of young adults seems to produce only marginal results (Kim, Munson & Mckay, 2012). In a study by Patel, Fisher, Hetrick & Mcgorry (2007) only one out of five adolescents or young adults who were seen by a mental health care professional, was no longer suffering from a psychiatric disorder three years later. An important reason is the difficulty to engage and motivate young adults to complete treatment. As few as 9% of youths remain in care after 3 months (Mckay & Bannon, 2004).

One suggestion for this problem is the focus of the mental health field on criterion based diagnosis. A growing body of research (Zarate Jr., 2013) shows that diagnostic categories based on clinical consensus fail to align with findings in areas like clinical neuroscience and genetics. In the clinical practice of the mental health field, the diagnosis of disorders based on the Diagnostic and Statistical Manual of Mental disorders (DSM) is used to classify patients and is instrumental in the choice of treatment. Criticism on diagnosis based treatment have been around since the introduction of this classification system. A source of problems arise when patients meet the criteria of two or more disorders. The occurrence of more disorders in the same patient is called comorbidity. Comorbidity forms an obstacle in classifying patients and our diagnostic system might be in part responsible for the concept of comorbidity (Cramer, Waldorp, van der Maas, Borsboom, 2010). Westen (2000) argues that personality as measured by the construct personality organization (PO) provides an explanation for the problem comorbidity.

Likewise, personality as measured in various models has shown to be an important predictor of therapeutic success and attrition rates (Zanarini, Frankenburg,Hennen, Reich, & Silk, 2005; Scholte, Eurelings-Bontekoe, Tiemens, Verheul, Meerman, Hutschemaekers, 2014). One way to measure personality as a predictor of therapeutic success is by looking into underlying personality structures. Personality organization (PO), introduced by Kernberg (1984) has been widely validated as a latent construct (Huprich & Greenberg, 2003; Laverdiere, Diguer, Hèbert, Larochelle, Descôteaux, 2009).The construct PO describes how affect, motives, cognitions and behavior are interwoven with one and other (Westen, 2000).

Furthermore, PO complements the current categorical DSM model because it is both a dimensional as well as a categorical model. It is able to tackle issues as limited coverage, lack of subtlety of diagnosis and poor reliability of diagnosis (Koelen, Luyten, Eurelings-

Bontekoe, Diguar, Vermote, Lowyk & Bühring, 2012). PO is divided into different levels ranging from psychotic PO to neurotic PO (Kernberg, 1984).

This study focuses on the levels of PO as a predictor of therapeutic success in young adults. By my knowledge, no research has been done yet to look at this vulnerable group in relation to therapeutic success and level of PO.

1.1.Vulnerability of young adults

Emerging adulthood is a time in the lives of young adults where a great deal of personal and social changes occur. This transition from adolescence to adulthood involves seeking higher education, new employment opportunities, new social contacts, more independence and more responsibilities (Arnett, 2004). Traditionally, the markers for the transition to adulthood were employment, marriage and children. These markers were set back in recent years and the transition between adolescence and adulthood is prolonged. This newly formed period in the lives of young adults is called emerging adulthood (Arnett, 2000).

On the one hand, this transition period brings more freedom and independence, however it symbolizes a period with more instability, insecurities and responsibilities as well. Young adults are entitled to the same rights and responsibilities as adults which give them access to adult privilege. However, they have not truly internalized the responsibilities associated with adulthood yet (Moffitt, 1993).

Given this transition, it is not difficult to imagine that young adults are more vulnerable to develop mental disorders than in any other point in their lives (WHO, 2009). Research shows that 75% of all psychiatric disorders first manifest before the age of 24, 50% before the age of 14 (Kessler, Bergland, Demler, Jin, Walters, 2005). The most common disorders found in young adults are anxiety disorders (22.3%), substance abuse disorders (22%) and mood disorders (22%). Mood disorders, schizophrenia and substance abuse disorders most commonly find their onset in the late adolescent to early adulthood (Benes, 1995).

Even though this age group is considered vulnerable, their consumption of psychiatric help is limited. The total amount of money available for psychiatric help contributed to patients under the age of 18 is only 11% in the United States (Costello, Egger, Angold, 2005). In a study by Yap, Reavly & Jorm (2013), the refusal of children and young adults to reach out for psychiatric help was researched in Australia. The most named reason to not seek help was feelings of shame and shyness. Only 10% of the participants stated that they would look for professional help if needed.

1.2. Treatment of young adults

Most young adults who develop psychiatric disorders have been in contact with either community based outreach programs or mental health professionals in their youth or adolescence (Foster & Gifford, 2005). In the Dutch mental health system, by reaching the age of 18 most of these youth outreach programs and child mental health care are no longer available. This problem not only occurs in The Netherlands. A study by Singh et al. (2010) states that in only 5% of the cases a switch between child psychiatric care into adult psychiatric care was satisfactory in the United Kingdom. Most of the mental health care for adults focuses on self-efficacy and put the responsibility for treatment in the hands of the patient. Young adults who experience difficulty in transitioning to adulthood, might not be able to take full responsibility for their treatment yet. By eliminating the support by the child psychiatric care facilities, their transition is made even more challenging (Osgood, Foster, Flanagan & Ruth, 2005). Inadequate treatment can lead to more severe disorders later in life, delinquency, lower socio-economic status and lower education level (Blokland, Palmen & Van San, 2012).

Therefore, it is crucial that once young adults are in treatment, that these are effective. Yet the current view on psychopathology is limited for at least two reasons. First of all, most psychiatric treatment in young adults in The Netherlands is based on the Diagnostic and Statistical Manual for mental disorders (DSM) criteria for mental disorders (Nederlandse Zorgautoriteit, 2014). The revised system implemented recently focusses the care of psychiatric treatment based on a DSM diagnosis. Criticism on diagnosis based treatment have been numerous (Alorcan, 2009; Green, 2014; Rapin, 2014). Developmental psychologists as well as neuropsychologists argue that the transition period between adolescence and adulthood is fundamentally different and might ask for a different approach. Executive functions such as planning decision-making and impulse control are still developing (Crone & Dahl, 2012). Also moral reasoning and the development of the personality traits are still unstable (Blokland, Palmen & van San, 2012). All of this suggest that young adults are more able to change and grow, compared to adults. Also, the stigmatization of a DSM diagnosis might undermine this growth process (Green, 2014).

Second limitation of the current view on psychopathology is that patients are, at the start of therapy, more alike than different and that the therapeutic process is similar for everyone. Blatt & Felsen (1993) state that type of underlying personality characteristics play an intricate part in the responsiveness of patients to different parts of the therapeutic process.

Reviewers (Lambert, 1992) have concluded that the majority of the variation in therapy outcomes is accounted for by the personal characteristics and qualities of the patient. This is approximately 40%. This is considerably more than is attributed to the effects of particular kinds of therapy intervention (Clarkin & Levy, 2004).

1.3. Personality development

Even though the general focus of this paper is directed towards the question whether personality has influence on therapeutic success, attention should also be paid to the way personality is formed especially during young adulthood. The traditional view of trait psychology has shown high personality consistency in adults (McCrae & Costa, 1999) but in recent research, personality seems much more changeable throughout the life-span (Helson, Jones, Kwan, 2002). As mentioned earlier, young adults are more than ever still able to change and grow during this period in their lives.

Young adulthood is proven to be particularly important in the development of personality. Roberts, Walton and Viechtbauer (2006) concluded that the most substantial changes in personality traits of the Big Five are observed in young adulthood. The development of personality is seen as a maturation process guided by genetic factors (Costa & McCrae, 2006) but also environmental factors such as social development, role transitions and life events play a part (Roberts, Woods & Caspi, 2008). Young adults generally show an increase on the personality traits Conscientiousness and Agreeableness and a decrease in Neuroticism (Helson, Kwan, John & Jones, 2002; Roberts, Walton & Viechtbauer, 2006). This can be seen as a result of the maturation process. Young adults tend to become better adjusted and more responsible, mature and emotionally stable (Leikas & Salmela-Aro, 2015). Roberts & Woods (2008) suggests that social investment (such as entering a university or work life as a young adult) predicts personality development towards maturation. Furthermore, slower personality maturation may be due to not engaging in socially mature transitions or making socially disapproved choices (Roberts & Bogg, 2004). Young adults struggling with mental illness might not be able to socially invest which could to lead to slower personality maturation.

It is important for this study to realize that personality development in young adults is an ongoing process. Much of the underlying structures of personality constructs are still changing and developing. By paying attention in the psychiatric treatment of young adults, to this process, better treatment outcomes can be facilitated.

1.4. Personality organization

As mentioned earlier in this paper, personal characteristics of the patient account for approximately 40% of the variation in therapy outcome (Lambert, 1992). One could easily argue that personality might play a more important role in treatment success than a criterion based diagnosis. Personality as a construct can be measured in many different ways. In this study personality was measured in terms of personality organization (PO). One way to organize personality constructs is the use of a latent construct named PO. First introduced by Kernberg (1984), PO refers to a set of enduring, but mostly unconscious psychological structures that organizes mental processes in a dynamic way. These structures combined are categorized in a coherent organization (Gamache et al, 2009).

PO, as a latent construct, can only be measured by manifest indicators. Manifest indicators for PO are: identity integration versus diffusion, primitive versus mature defense mechanisms, reality testing (Kernberg, 1984; Kernberg & Caligor, 2005), and quality of object relations, moral functioning and personality rigidity (Caligor & Clarkin, 2010; Gamache et al., 2009). According to Kernberg (1984) three levels of structural personality are distinguished: Neurotic PO (highest level), Borderline PO (intermediate level) and Psychotic PO (lowest level). Kernberg (1984) also makes a distinction in the borderline personality organization (BPO) between high level BPO and low level BPO. This tripartite model is the basis of the psychodynamic theory of personality pathology (Kernberg, 1984; Kernberg & Caligor, 2005).

Because PO cannot be directly measured, many different approaches have been developed to measure PO. In this study, the Dutch short form of the MMPI (DSFM) is used as measure of PO. The usefulness of the DSFM as measurement of PO has been widely researched and validated (Eurelings-Bontekoe, Onnink, Williams and Snellen, 2008; Scholte, Eurelings-Bontekoe & Luyten, 2010; Eurelings-Bontekoe, Luyten, IJssennagger,Van Vreeswijk, & Koelen, 2010; Eurelings-Bontekoe, Luyten, Remeijsen & Koelen, 2010; Eurelings-Bontekoe, Tiemens, Verheul, Meerman and Hutschemaekers, 2014). The use of the DSFM is based on the theory-driven interpretation of the MMPI (Eurelings-Bontekoe & Snellen, 2003).

Furthermore, based on the model of Kernberg (1984), research by Eurelings-Bontekoe, Van Dam et al. (2009) describes different sets of borderline personality subtypes according to the theory-driven interpretation of the MMPI. The description of these subtypes is based on more than 20 years of research concerning this topic (Eurelings-Bontekoe &

Snellen, 2003). In this study, the patients have been classified based on their DSFM scores according to this model.

1. The first subgroup of patients is called "the immature BPO profile." This subgroup is characterized by a good to moderate anxiety threshold in combination with a moderate level of control. The personality of these patients has not fully matured which can result in high emotionality, difficulty integrating aggressive feelings, self-centeredness and difficulty with impulse control. Likewise, these patients have problems with intimacy despite their longings for dependency and care.
2. The second subgroup of patients has a so-called narcissistic BPO profile. This subgroup is characterized by their denial of vulnerabilities. These patients seem to function well on the surface, but they show as-if and "eager to please" characteristics. Behind this strong façade lies a personality filled with identity diffusion, anger and a sense of entitlement. These patients have a strong need for perfection and control.
3. The third subgroup of patients consists out of the high-level BPO who are overly controlled. This subgroup is characterized by pour anxiety tolerance but with a high level of inhibition. Although these patients suffer from identity diffusion, they seem to have very strong control over their impulses, feelings and behavior. They are usually socially withdrawn. In therapy, their results tend to be more efficient compared to the low level/psychotic BPO.
4. The fourth subgroup of patients is the low-level BPO, also known as the core borderline type. These patients have moderate to pour anxiety tolerance and are in general impulsive. They have pour anxiety tolerance and low inhibition. These patients tend to act out and externalize, which can lead to antisocial behavioral tendencies.
5. The last subgroup is characterized as the psychotic BPO. These patients have pour anxiety tolerance and try to control their impulses by exerting control. This control is not sufficient which leads to negative affectivity. These patients are characterized by their identity diffusion and attempts to avoid acting out by exerting insufficient control. These patients are at risk of developing brief psychotic episode if stress levels rise too high.

Besides the sub characterization of the BPO, the Neurotic PO and the Psychotic PO can be classified (Eurelings-Bontekoe & Snellen, 2003).

1. Patients who can be characterized as a neurotic PO profile, have moderate to good anxiety tolerance with high levels of inhibition. These patients are overly controlled by inhibition which can lead to obsessive compulsive tendencies. They tend to internalize their problems.
2. Patients who can be characterized as a psychotic PO have moderate to pour anxiety tolerance with lacking inhibition. The control exerted to prevent decomposition is insufficient. In comparison to the psychotic BPO, this does not lead to negative affectivity. These patients attempt to avoid acting out by exerting insufficient control which can result in (brief) psychotic periods in combination with externalizing of the problems.

1.5. Previous research

Level of PO plays an important part in the treatment response (Koelen, 2012). Koelen et al. (2012) showed in a systematic review that patients with high levels of PO did better in treatment compared to patients with low levels of PO. High levels of PO is characterized by sufficient inhibition control over impulses and the tendency to internalize. High-level BPO and neurotic PO are generally considered the higher levels of PO (Eurelings-Bontekoe & Snellen, 2013). In another study, Eurelings-Bontekoe, Peen, Noteboom, Alkema, and Dekker (2012) showed that patients with a high level BPO had better outcome of a short term ambulatory treatment- as -usual in mental health care than lower level BPO with psychotic vulnerability, as assessed with the theory driven profile interpretation of the Dutch short form of the MMPI (DSFM). According to Digre, Reece, Johnson & Thomas (2009) subtyping of borderline personality disorder patients could play an important part in addressing the problem of the heterogeneity of the group of patients and could tailor interventions and treatment modalities more specific to the patient's characteristics. This could lead to more efficacious and cost-effective treatments.

Thus, the present study was conducted to examine whether or not PO plays a part in therapeutic change in young adults. Based on previous research, I hypothesize that PO plays a part in therapeutic success. I will also examine whether or not different types of PO benefit more from therapy. The hypothesis is that higher levels of PO will benefit more from treatment. Last, I will look at the reliable change index to indicate which types of PO achieve

the most reliable change (Jacobson & Truax, 1991). The sample used in this study consists of 187 young adults in a treatment program that focusses on the maladaptive identity development of young adults. The treatment program focuses on the identity development in relation to their psychiatric complaints. Therapeutic success is formulated as a significant decrease in symptoms after the end of treatment as compared to baseline levels of symptomology.

2. Methods

2.1. Participants

During a five year period, data was collected among young adults who received ambulatory care within a GGZ mental care facility in Bergen op Zoom and Roosendaal in the Netherlands. All participants were diagnosed with at least one DSM axis I or II diagnosis. A total of 187 were enrolled in the study. The primary diagnosis for most of the participants (N = 176, 94%) was an Axis I diagnosis. Only 6% (11) had a primary diagnosis on Axis II. Age was known for all participants and ranged from 18 to 27 years with a mean of 23.07 years. 62 of the participants were male (33%) and 125 of the participants were female (67%). Participants, who were treated in an inpatient treatment program, were excluded. The duration of the treatments varied between 3 months and 4 years. Number of sessions was not known for the participants. The participants were asked to sign an informed consent form before their treatment, stating that they gave their permission to use the questionnaires for research purposes. Participants were not informed about the aim of this specific study. Different treatment modalities were offered to the participants including individual therapy and group therapy. Individual therapy was based on a mixture of cognitive behavioral therapy, interpersonal therapy and schema therapy.

This facility offered four different types of dynamic groups which focused on the developmental stage of the young adults. The therapy groups differed in the amount of introspective ability asked of the patient. One group therapy (Body&Mind) included besides psychotherapy also psychomotor therapy which can be explained as sensorimotor psychotherapy. All four dynamic groups were included in this study. Treatment courses focused on autism spectrum disorder or ADHD were also included in the study. 70% of the participants were individually treated and 30 % were treated within a group setting. Of the 52 participants treated within group therapy, 63% was treated in the "Jongeren Groei Groep" (Youth growth group), 13% in the "Body & Mind groep", 12% in the ZZ groep (Self-assured, self-efficient group) and 19% in the "Inzichtgevende groep (Introspective group)."

2.2. Procedure

The participants were admitted to the treatment program after referral by their general practitioner or by another mental health care professional. Patients were assigned to their treatment program after an hour long intake with a certified therapist and the completion of seven different questionnaires including the SCL-90-R and the DSFM. The questionnaires

were given to the participants to fill out at home and the participants were requested to send them back. The participant's symptoms and personality traits were discussed during staff meetings, subsequently a proposal for a treatment program was determined. Participants were free to accept or decline the proposed treatment.

At the end of the treatment program, participants were asked to fill in another set of questionnaires including the SCL-90-R and to send them back to the facility after completion. All questionnaires were processed by an independent research assistant who was not involved in this study. During the time of this study, no follow up data were available.

Treatments were provided by two certified psychologists (GZ-psychologist), one psychotherapist, two specialized psychiatric nurses and one psychiatrist. All were licensed to provide group as well as individual therapy. It was not possible to check program integrity during the study.

2.3. Measures

Age, treatment modality, gender and diagnosis

Age, treatment modality, gender and diagnosis of the participants were found in the administration system of the researched mental health care facility. As mentioned above, treatment modality was either individual therapy or group therapy, divided into four groups. The diagnosis was based on the classification system of the DSM IV axis I and II, which was derived from patient files as well. For this study, limited access to the patient files was granted to acquire this information. Confidentiality agreements were adhered regarding the information acquired from the administration system. Participants were not individually informed about the collection of these data.

SCL-90-R

The Symptom Checklist 90 Revised is the most widely used multidimensional symptom questionnaire (Prunas et al., 2010). The self-administered questionnaire consists of 90 descriptions of complaints or symptoms. The patient needs to report to what extent the symptoms were present during the past week. The SCL-90R consists out of eight scales: Somatization, Obsessive-compulsive, Interpersonal sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychoticism. The total score of the SCL-90 is considered to reflect the global level of severity of symptomatology and is therefore called the Global Severity Index (GSI). Each item is rated on a 5-point Likert scale ranging from "Not at all" (0) to "Extremely" (4). The test-retest reliability over one week interval ranged

from .78 for Hostility as high as .90 for Phobic Anxiety (Prunas, 2001). This is considered good. SCL-90-R has a high correlation with the Beck Depression Scale (.80) and is as effective in detecting depression. Sensitivity (77%) and specificity (87%) were also high in a sample of patients with bulimia (Peveler, 1990). In this study, the internal consistency based on the Cronbach's α is large (.89 to .91).

The Dutch short form of the MMPI-2 (DSFM)

The questionnaire is a Dutch shortened version of the Minnesota Multiphasic Personality Inventory 2 (Lutelijn & Kok, 1985). The questionnaire consists of 83 items divided into five subscales: Negativism, Somatization, Shyness, Severe Psychopathology and Extraversion. The test-retest reliability ranged between from .60 for the Extraversion scale to .82 for the Negativism scale over a 6-month period. This is considered acceptable. The validity of the DSFM is considered good (Lutelijn & Kok, 1985). In a recent study by Eurelings-Bontekoe (2012) the Cronbach's α ranged from .78 for Extraversion to .88 for Somatization. Cronbach's α for this study was .975 which is considered very high.

Based on the interpretation schema of Eurelings-Bontekoe, Onnink, Williams and Snellen (2008) patients are classified either with a neurotic PO, with a borderline PO or with a psychotic PO. Within the BPO domain five groups of patients are identified: high-level BPO, psychotic BPO, low-level BPO, narcissistic BPO and immature BPO.

TABLE 2.2. The classification of structural pathology based on the dimensional interpretation of the DSFM (Eurelings-Bontekoe & Snellen, 2003)

Severity Psychopathology	**Psychotic PO**	**Borderline PO**		**Neurotic PO**
>= 8 (high to very high)	Psychotic PO (manifest) (V> = 14, but < = 25; N<= 27)	High level borderline PO (V> = 26) Psychotic borderline PO (V>= 14 but < = 25; N> = 28) Low Level Borderline PO (manifest) (V<= 13)		
4 -7 (Average to above high)	Psychotic PO (latent) (V>= 14, but <= 19; N<= 27)	Low level borderline PO (latent) (V<= 13)	Immature PO (V>= 20, but <= 25)	Neurotic PO (V>= 26)

0 – 3 (Low to average)	Narcissistic Borderline PO (V<= 13)	Immature PO (V>= 14, but <= 19)	Neurotic PO (V>= 20)

A number of studies have provided evidence for the validity of the theory driven profile approach of the DSFM to capture structural personality pathology (Eurelings-Bontekoe, Luyten & Snellen, 2009; Eurelings-Bontekoe, van Dam, Luyten Verhulst, Van Tilburg, De Heus & Koelen, 2009; Eurelings-Bontekoe. Luyten, IJssennagger, Van Vreeswijk, & Koelen; Eurelings-Bontekoe, Luyten, Remijsen & Koelen, 2010).

In this study, seven different categories of profiles were composed based on the individual scores on the DSFM subscales. The groups of participants with a high-level BPO, psychotic BPO and narcissistic BPO profile were formed according to the criteria mentioned above. The latent and manifest categories of both psychotic PO and low-level BPO were compiled to form two groups of participants. Likewise, both participants with neurotic PO and immature PO with severity scores between 0-7 were compiled into two groups. This was done to benefit the group sizes in the research sample. The seven categories used in this study were psychotic PO, high-level BPO, psychotic BPO, low-level BPO, narcissistic BPO, immature BPO and neurotic BPO.

2.3. Research design

The study utilized a quasi-experimental research design to compare pre-test post-test measures. No control group was used.

2.5. Statistical analysis

To answer the main research question, a repeated measures ANOVA was conducted. Time (T1 and T2) was used as the within participant factor, level of PO as the between participant factor and SCL-90-R GSI scores as dependent variable. Effect sizes were expressed as partial eta squared (η_p^2). According to conventional criteria (Cohen, 1988) an η_p^2 of 0.01 is small; 0.06 moderate; 0.14 large. To further investigate the research question, a second repeated measures ANOVA was conducted with time (T1 and T2) as the within participant factor, primary diagnosis as the between participant factor and SCL-90-R GSI scores as dependent variable. Likewise, effect sizes were expressed as partial eta squared (η_p^2).

To compare the different types of PO regarding change in symptomology, I conducted post-hoc pre-planned dependent sample t-tests. To identify differences at baseline, independent t-tests were conducted.

Furthermore, I will compare the different types of PO regarding clinically significant change in symptomatology according to the two step formula of Jacobson and Truax (1991). The first step consists of calculating the reliable change index (RCI).

The RCI can be calculated as follows:

$$\frac{Pretest - Posttest}{S.Diff} = RCI$$

With S.diff defined as:

$$\sqrt{2(S_e)^2}$$

S_e is defined as the standard error of measurement. RCI should be greater than 1.96 to be considered reliable on a .05 level of confidence (Jacobson & Truax, 1991).

The second step consists of deciding the cut-off scores between a normal sample and a dysfunctional sample. The cut off score for the SCL-90-R is 141. Based on the RCI and the cut-off scores, the different PO types can be put into five subgroups:

1. Patients show clinical significant change (they fit both criteria).
2. Patients show reliable change which means improvement in the positive direction.
3. Patients who do not show reliable change but score on T2 is below the cut of point. These patients are not improved but function in a normal range.
4. Patients who do not show reliable change and their score on T2 falls in the dysfunctional range. These patients are not improved and still fall in the dysfunctional range.
5. Patients who show reliable change in the negative direction. These patients have deteriorated during the treatment.

Subsequently, we will investigate the association between levels of PO and the types of change as operationalized above using chi square statistics. Effect sizes of X_2 were expressed in terms of Cramer's *V*. According to conventional criteria (Rea & Parker, 1992), a Cramer's *V* under 0.10 is negligible, a *V* of 0.10 and < 0.20 is weak, a *V* of 0.20 and <0.40 is moderate, a *V* of 0.40 and < .60 is relatively strong, a *V* of 0.60 and < 0.80 is strong, and finally, a *V* of 0.80 to 1.00 is very strong.

3. Results

3.1 Associations between level of PO, age, diagnosis and treatment modality.

The descriptives of the sample are depicted in table 3.1, 3.2 and 3.3. Overall, 70.1 % of the patients received individual therapy and 28.9 % received some type of group treatment. Most of the patients (94%) received a DSM IV Axis I diagnosis as the primary diagnosis. Only 6% received a DSM IV Axis II diagnosis. The most prevalent diagnosis was Identity problems (26.7%), which is coded in the DSM IV as a *V* code (DSM IV, 2013). Overall, 70.1 % of the patients received individual therapy and 28.9 % received some type of group treatment.

TABLE 3.1. Frequencies of level of PO

PO	***n***	**%**
Narcissistic BPO	40	21.4
Immature BPO	39	20.9
Neurotic BPO	39	20.9
Low-level BPO	31	16.6
Psychotic PO	10	5.3
High-level BPO	9	4.8
Psychotic BPO	8	4.3
Missing	11	5.9
Total	187	100

TABLE 3.2. Frequencies of treatment modality

Treatment modality	***n***	**%**
Individual therapy	131	70.1
Youth growth group	33	17.6
Body & Mind	7	3.7
Self-assured, self-efficient group	6	3.2
Introspective group	10	5.3
Total	187	100

TABLE 3.3. Prevalence of DSM Axis 1 & 2 diagnosis

Diagnosis	***n***	**%**
Psychotic disorder	2	1.1
Mood disorder	23	12.3

Anxiety disorder	32	17.1
Somatoform disorder	4	2.1
Eating disorder	4	2.1
Autism	12	6.4
ADHD	22	11.8
Conduct disorder	18	9.6
Identity problem	50	26.7
OCD	4	2.1
Personality disorder – cluster B	7	3.7
Personality disorder – cluster C	4	2.1
Other	5	2.7
Total	187	100

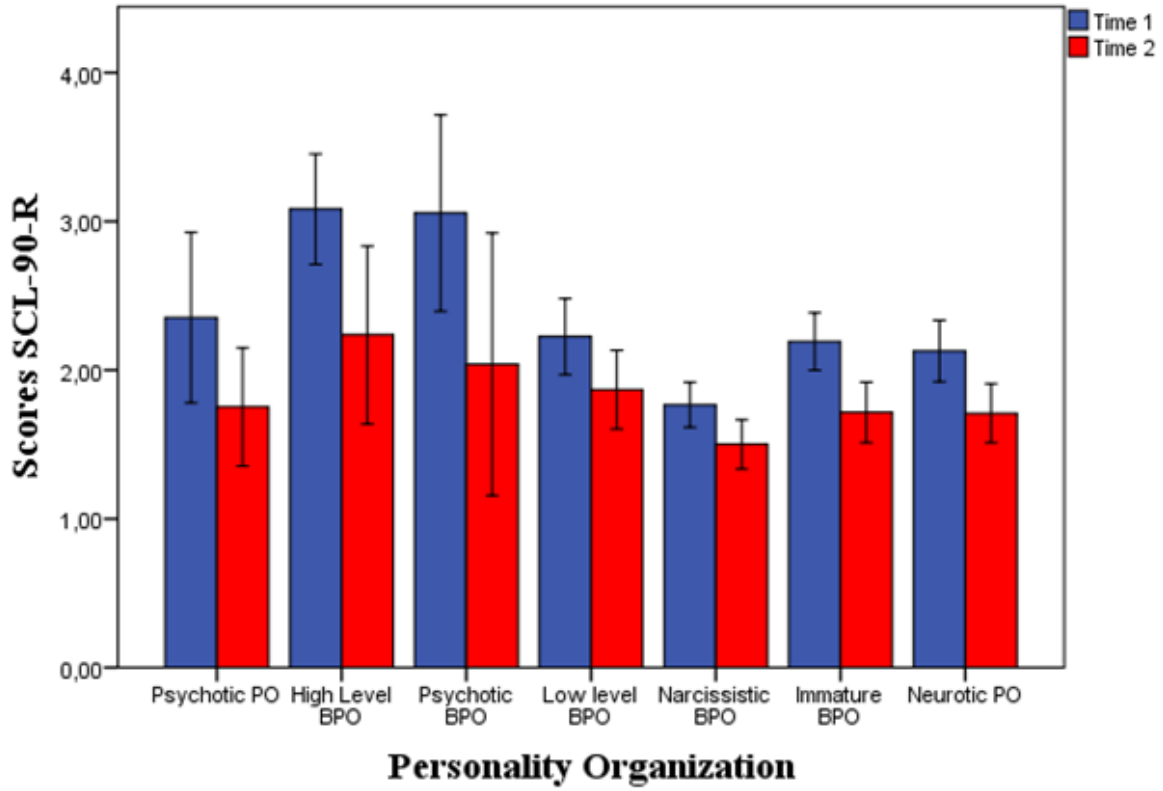
Age, diagnosis and treatment modality were compared to the different levels of PO to investigate the association between these factors. Age (M = 23.07, *n* = 187, range = 8) was not significantly associated with levels of PO χ^2 (63,176) = 71.726; *p* = .211. Neither was diagnosis significantly associated with level of PO χ^2 (84,176) = 93.783; *p* = .218, nor treatment modality was significantly associated with levels of PO χ^2 (24,176) = 25,545; *p* = .377.

To investigate the differences on baseline between the levels of PO independent t-tests were conducted. Overall, participants with a narcissistic BPO scored significantly lower on the baseline score compared to the other levels of PO (*ts*>.2.221, *ps*>.05). High-level BPO patients differed significantly from all other levels of PO except for the psychotic BPO (*ts*>2.426, *ps*>.05). Both high-level and psychotic BPO scored significantly higher on the baseline of severity of symptomology compared to the other levels of PO, though they did not significantly differ from each other. Psychotic BPO patients scored significantly higher than immature BPO, neurotic BPO and low-level BPO (*ts*>2.920, *ps*>.05).

3.2. The influence of level of PO on treatment success

Figure 3.1 illustrates the differences between the levels of PO on T1 and T2 in severity of symptomology scores. A repeated measure ANOVA with level of PO as independent variable and self-reported symptomatology over time as the dependent variable showed a significant main effect over time $F(1, 169) = 81{,}826$, $p<.001$, $\eta_p^2 = .326$ (*large)*) and showed a significant interaction effect of time and levels of PO, $F(6, 169) = 2.260$, $p<.05$, $\eta_p^2 = .074$ (*moderate).*

FIGURE 3.1 Mean scores of severity of symptomology on T1 and T2



Post hoc independent t-tests showed that the high-level BPO patients ended treatment with more severe symptomatology, compared to the immature BPO, neurotic BPO and narcissistic BPO (*ts*>2.148, *p*<.05*)*. Narcissistic BPO patients reported the least amount of severity of symptomatology at T2 compared to low-level BPO, psychotic BPO and high-level BPO, (*ts* <-2.204, *p*< .05).

Furthermore, we conducted pre-planned dependent sample t-tests to compare the different levels of PO on symptom severity at T1 and T2. There was a significant difference between T1 and T2 for all the levels of PO except for the psychotic PO, T1 (M = 2.166, SD = .680) and T2 (M = 1.859, SD = .740), *t* (9) = 1,960, *p* = .082. These results would suggests that levels of PO have influence on the decrease in severity of symptomology after treatment.

In addition to figure 3.1, to investigate the relation between change in symptomology and levels of PO, the effect sizes were calculated and expressed in Cohen's *d* (table 3.3). The effect sizes can be used to answer the research question whether higher levels of PO would benefit more from treatment.

Post hoc tests showed that high-level BPO patients profited most from therapy according to self-reported symptomatology, effect size of the difference in mean score

between T1 and T2 = 1.38 *(large).* Patients with low-level BPO and narcissistic BPO benefitted the least, effect sizes of .50 and .54 *(moderate).* Interestingly, although the decrease in symptoms was not significant for the psychotic PO (p =.082), the effect size was .87.

TABLE 3.3 Mean scores and standard deviations of severity of symptomology for T1 and T2 and effect size differences in mean scores between T1 and T2 based on Cohen's *d*.

	Psychotic PO (10)		**High level BPO (9)**		**Psychotic BPO (8)**		**Low-level BPO (31)**		**Narcissistic BPO (40)**		**Immature BPO (39)**		**Neurotic PO (39)**	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Severity of symptomology (T1)	2.35	.80	3.08	.48	3.06	.79	2.23	.70	1.77	.47	2.19	.59	2.13	.64
Severity of symptomology (T2)	1.75	.56	2.24	.78	2.04	1.06	1.87	.72	1.50	.52	1.71	.63	1.71	.61
Cohen's *d*	*.87* (large)		*1.38* (large)		*1.1* (large)		.50 (medium)		.54 (medium)		.78 (large)		.77 (large)	
P	**.082**		.018		.005		.010		.000		.000		.001	

Finally, to compare the role of PO in the process of therapeutic success to the role of diagnosis, a repeated measure ANOVA with diagnosis as independent variable and self-reported symptomatology over time as the dependent variable was conducted as well. When examining diagnosis as predictor of change instead of PO, a significant main effect over time was found F (1, 187) = 19,887, p<.001, η_p^2 = .103 (*moderate*) and a significant interaction effect of time and diagnosis as well, F(12, 187) = 2,198 p<.05, η_p^2 = .132 *(moderate).* Interesting enough, when entering both diagnosis and level of PO in a repeated measures ANOVA as predictors, only diagnosis remains significant F(12,187) = 1.746 p<.046, η_p^2 = .152 *(moderate).* Level of PO is no longer a significant predictor of change in symptomology over time in this analysis F (6,169) = 1.762, p<.113, η_p^2 = .082 (*small*).

3.3. Clinically significant change

Furthermore, to establish the influence of levels of PO on therapeutic success, the reliable change index was calculated. The formula for calculating clinical significant change by Jacobson and Truax (1991) showed that overall only 11 patients achieved clinical significant change (6.2%); only 2 were improved showing reliable change in the positive direction (1.1%); 84 (47.7%) were unchanged at T2 but functioned in the normal range; 78

(44.3%) were unchanged and still in the dysfunctional range at T2; and 1 (0.6%) deteriorated. Patients with the several types of PO did not differ significantly regarding types of change in symptomatology χ^2 (24,176) = 31.802; p = .132, Cramer's V = .213 *(moderate*).

TABLE 3.4 Distribution of types of changes and level of PO

	Clinically significant change		**Reliable change +**		**No change – T2 normal range**		**No change – T2 below normal range**		**Reliable change -**		**Total**	
PO	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Narcissistic BPO	0	0	0	0	27	67.5	13	32.5	0	0	40	100
Immature BPO	5	12.8	0	0	19	48.7	15	38.5	0	0	39	100
Low-level BPO	1	3.2	1	3.2	12	38.7	17	54.8	0	0	31	100
Psychotic BPO	1	12.5	0	0	3	37.5	4	50	0	0	8	100
High-level BPO	1	11.1	0	0	1	11.1	7	77.8	0	0	9	100
Neurotic PO	3	7.7	0	0	18	46.5	17	43.6	1	2.6	39	100
Psychotic PO	0	0	1	10	4	40	5	50	1	100	10	100
Total	11	6.2	2	1.1	84	47.7	78	44.3	1	0.6	176	100

4. Discussion

The aim of this study was to investigate whether or not personality plays a part in treatment success in young adults. This was done by studying different personality types (known as levels of PO) in relation to the change in severity of symptomology over time. Treatment success was defined as a significant decrease in symptoms after treatment. Factors such as diagnosis, age and treatment modality were taken into account. I hypothesized that levels of PO would have a significant effect on change in severity of symptomology over time. This hypothesis was partly supported by the data. Personality as measured by PO, was significantly associated with change severity of symptomology over time. However, when entering DSM IV diagnosis as predictor, it turns out that DSM IV diagnosis is the stronger predictor. Also, in a MANOVA with both level of PO and diagnosis as predictors, only diagnosis showed a significant result. This would indicate that DSM IV based diagnosis was the better predictor of change in symptomology over time than level of PO in this sample, which is in contrary to the general hypothesis of this study.

This result can partly be explained by the characteristics of the research sample. Young adults score higher on impulsivity scales and antisocial behaviors as it is (Blokland et al. 2012). The structural personality pathology as assessed by the psychodynamic theory could prove to be an issue in young adults as the personality pathology has not quite taken shape yet. As mentioned before, personality maturation takes hold during emerging adulthood which could be an explanation for the results of this study (Robert, Walters and Vlechtbauer, 2006).

Furthermore, the sole use of self-reports in this study could further explain the contrary results of this study. For example, the narcissistic BPO patients scored significantly lower in symptom severity on both measuring points. This was in line with previous research (Eurelings-Bontekoe, Peen, Notenboom, 2012). The narcissistic BPO group had the largest sample size of this study (n = 40). Remarkably though, the DSM IV based diagnoses of the narcissistic BPO subset did not significantly differ from the rest of the sample. This would indicate that a low score on a self-report symptom severity checklist does not exclude psychopathology when diagnosed by a mental health care professional. The use of self-reports should be in question especially in patients with a narcissistic BPO. Self-reports relay highly on the patient's ability of self-awareness which is distorted in patients with personality pathology and especially in patients with a narcissistic BPO. Narcissistic BPO patients tend to deny their vulnerabilities and present with "illusionary health". These result would indicate

that self-reports alone have little value in determining psychopathology (Eurelings-bontekoe, Luyten, Remijsen et al., 2010; Eurelings-Bontekoe, Luyten, IJssennager et al., 2010, Eurelings-Bontkoe, Peen, Notenboom et al., 2012). For the overall sample, 26.7% presented with Identity problems based on the DSM IV. The amount of self-awareness required to answer the self-report questionnaires correctly might be lacking based on their delayed personality maturation process (Roberts, Walton & Viechtbauer, 2006). The sole use of self-reports to establish personality profiles seems to be insufficient. For future research, clinical judgement of the personality constructs by trained professionals should be taken into account and compared to the data acquired by self-report questionnaires. The DSM IV criterion based diagnosis was based on a semi-structured intake interview in this study. The clinical judgement of the trained professionals on the symptom criteria resulted in a stronger predictor of change in symptomology.

The results of this study could be influenced by the distribution in the sample as well. First of all, it is important to note that the sample size of the high-level BPO group (n = 9) the psychotic BPO group (n = 8) and the psychotic PO (n = 10) group were small. These groups were hypothesized to have the highest scores on symptom severity on baseline according to the psychodynamic theory of personality pathology (Snellen & Eurelings-Bontekoe, 2003). Possible explanations for the small sample sizes in these groups can be found in the characteristics of the research population. As mentioned earlier, young adults are extremely difficult to engage in treatment (McKay & Bannon, 2004). High-level BPO and psychotic BPO patients had the highest scores on symptom severity on baseline. It is perceivable that only the most motivated of the high symptom severity patients stay in treatment. The rest is at higher risk to drop out early. In a naturalistic study by Schindler, Hiller and Witthoft (2013) one of the predictors of early drop-out in CBT in patients with depression was symptom severity and comorbid symptoms. Unfortunately, no data concerning early drop-out was available for this sample. Future research should include an analysis of the data of patients who drop out early. One of the exclusion criteria for this study was inpatient care. Patients with higher scores on symptom severity might off ended up in the inpatient program. No data on possible transfers to inpatient care facilities was available for this sample.

The second question to be answered in this study focused on whether higher levels of PO benefitted more from treatment. Higher levels of PO were defined as levels of PO with sufficient scores on inhibition to exert control over impulses (Eurelings-Bontekoe & Snellen,

2003). I hypothesized that patients with higher levels of PO, would benefit most from treatment and would show the most improvement over time.

Even though, high-level BPO patients had the greatest effect size expressed in Cohen's (1.38), there was no significant difference found in the reliable change index based on levels of PO. Likewise, no significant difference was found between levels of PO based on the change in symptomology, except for the psychotic PO (p = .082). This leads to the conclusion that in this study the relevance of the classification by levels of PO is not confirmed.

The results of this study did not support the hypothesis that patients with higher levels of PO benefit more from treatment. Both high-level BPO and psychotic BPO patients benefitted most of treatment in this sample. Based on earlier research, I expected that high-level BPO patients would achieve a significantly greater decrease in symptoms compared to psychotic BPO patients. Psychotic BPO patients are characterized as exerting insufficient control over their impulses and tend to act out when pressure rises (Eurelings-Bontekoe & Snellen, 2005). Externalizing behaviors are associated with poorer treatment outcome (Loffler-Stastka, Blueml, and Boes, 2010). In this sample, this was not the case.

This surprising result could implicate that externalizing behavior and internalizing behavior are at the core of treatment engagement. Loffler-Stastka, Blueml, and Boes (2010) showed that an externalizing personality factors appeared to be a stable predictor of non-engagement in therapy. Based on the psychodynamic theory of personality assessment by Snellen & Eurelings-Bontekoe (2005) the difference in treatment response between high-level BPO patients and psychotic BPO patients could be found in the lack of control psychotic BPO patients exert over their impulses. In other words, high-level BPO patients tend to internalize their negative emotions and psychotic BPO tend to externalize. Based on the results of this study, one could argue that the classification into different personality types should be based on the tendency to externalize rather than to internalize negative emotions. For this sample, no data regarding internalizing or externalizing behavior besides the DSFM scores, was present. More research is necessary to put the relation between internalizing and externalizing behavior in regards to treatment success in perspective.

One finding which did support the hypothesis, is the fact that psychotic PO patients in this sample did not improve significantly during treatment, although the p-value was close to .05 (p = .082). However, important to note here is that the effect size of the psychotic PO was none the less large (Cohen's d = .82). The differences between the levels of PO in this sample do not seem to be statistically relevant.

4.1 Limitations and recommendations for further research

In line with the new edition of the DSM, the DSM V, more and more research shows that underlying personality structures can be useful in the designing of therapeutic interventions besides criterion based diagnoses (Clarkin & Levy, 2004; Krueger, Watson, & Barlow, 2005; Loffler-Stastka et al., 2010; Luyten & Blatt, 2011; Shedler & Westen, 2007). Though, based on the results of this study, the question remains whether or not clinically significant differences between the personality types are present. Even though this study showed that high-level BPO patients showed the most progress. The psychotic BPO patients showed great progress in terms of decrease of symptom severity as well. The distinction between these different personality types turned out to be insignificant in this sample.

I should note that the distribution of personality types in this sample was skewed. The *n* of the high-level BPO group, the psychotic BPO group and the psychotic PO group were significantly smaller than the other subtypes. Taken the small *n* in this study into account combined with the naturalistic nature of this study, speaking of clinically significant results might not be appropriate. For future research, I suggest to acquire a larger sample of young adults to participate in the study, as well as different mental health care facilities should be recruited. In this study no control group was used. For future research a randomized controlled trial should be implemented if possible to better control for extraneous factors. Likewise, a control group should be included in the study.

Several other limitations of this study should be noted. The treatment interventions of the patients were considered "treatment as usual". This consisted of both individual and group therapy based on different types of therapeutic interventions such as interpersonal therapy, cognitive behavioral therapy and schema therapy. These treatments were not standardized and no information about program integrity was known. Likewise, information about level of experience or orientation of the various therapists were unknown.

The focus of the treatment facility was skewed towards the "special needs" of the young adult population in terms of identity discovery, maturation and independence. How these concerns were implemented into the treatment program was unclear. For future research, the methodology of the program should be standardized so it could weigh in as a factor as well as program integrity should be taken into account.

Furthermore, even though patients were only included if they received a minimum of two sessions, no information is known about the number of sessions each patient received. For further research, it is important to compare types of treatment and number of sessions with the different levels of PO. In a study by Eurelings-Bontekoe, Peen, Notenboom et al.

(2012) number of sessions and reduction in symptomology were positively correlated and high-level BPO patients received the largest number of sessions. Likewise, Hansen and Lambert (2003) showed that 50% of the patients acquire between 15 and 19 sessions to improve. The intensity of ambulatory care in comparison to the different PO types should be subject for future research.

Furthermore, the therapeutic alliance between patient and therapist was not measured. The therapeutic bond as a predictor of treatment success is widely established (Applebaum et al. 2012; Taft & Murphy, 2006; Sanders, Hilsenroth & Fowler, 2014). In a study by Eurelings-Bontekoe, Peen, Notenboom et al. (2012) the therapist-patient relations were rated highest by high-level BPO patients. Also, the agreement between therapist and patient regarding the improvement was highest rated by high-level BPO patients. The therapist's views on the therapeutic process of the patient were not included in this study. The therapeutic bond could explain in part the surprising results found in this study. This factor could mediate between the level of PO and the amount of treatment success. This important factor should be taken into account in future research.

Finally, well-being as measured by for example the Outcome Questionnaire (OQ45) as used in the study by Eurelings-Bontekoe, Peen, Notenboom et al. (2012) was not included in this study. For further research, well-being as a factor should be taken into account. Likewise, only the primary diagnosis was taken into account. For further research, comorbid diagnosis should be included.

All in all, levels of PO had a significant effect on change in symptomology over time. However, the difference in treatment success between the higher levels of PO and lower levels of PO was not confirmed in this study. The results of this study do not support the hypothesis that measures of structural psychopathology better predict the treatment outcome compared to primary DSM diagnosis. The added value of levels of PO in the diagnostic and treatment process should be further researched in young adults.

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